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 1                    UNITED STATES DISTRICT COURT
                      EASTERN DISTRICT OF VIRGINIA
 2                         ALEXANDRIA DIVISION


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       UNITED STATES, et al.,      :   Civil Action No.:
 4                                 :   1:23-cv-108
                   Plaintiffs,     :
 5         versus                  :   Wednesday, September 25, 2024
                                   :   Alexandria, Virginia
 6     GOOGLE LLC,                 :   Day 13 a.m.
                                   :   Pages 1-116
 7                 Defendant.      :
       ---------------------------x

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              The above-entitled bench trial was heard before the
 9     Honorable Leonie M. Brinkema, United States District Judge.
       This proceeding commenced at 9:03 a.m.
10

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22
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 1                     P R O C E E D I N G S

 2              THE DEPUTY CLERK:  Civil Action Number

 3    1:23-cv-108, United States of America, et al. versus Google

 4    LLC.

 5              Will counsel please note their appearance for the

 6    record, first for the plaintiffs.

 7              MR. HARRISON:  Good morning, Your Honor.  Jonathan

 8    Harrison from the Virginia Attorney General's Office on

 9    behalf of the states.

10              THE COURT:  Good morning.

11              MS. WOOD:  Good morning, Your Honor.  Julia Tarver

12    Wood from the Department of Justice on behalf of the United

13    States plaintiffs.  With me are my colleagues, Dan Guarnera,

14    Amanda Strick and Kelly Garcia.

15              THE COURT:  Good morning.

16              MS. WOOD:  And Mr. Mene from the U.S. Attorney's

17    Office.

18              THE COURT:  Yes.  He cannot be forgotten.

19              MS. WOOD:  He will not.

20              MS. DUNN:  Good morning, Your Honor.  Karen Dunn

21    for Google.  And with me today are Bradley Justus, Blake

22    Pescatore, Craig Reilly, Jeannie Rhee and Matt Spalding.

23    And we expect to be joined at counsel table when the witness

24    comes in by Caroline Boisvert.

25              THE COURT:  Very good.  Good morning.
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 1              So we can get started quickly, I did review before

 2    this morning's session the digest of Todd Parson's

 3    deposition.

 4              I am going to deny the government's request to

 5    have the yellow portions added.  I do find in fact that it's

 6    significantly cumulative of other things we've heard

 7    throughout the case as well as marginally involved in the --

 8    only marginally related to the examination.

 9              But again, the problem with some of these

10    depositions, I'm sort of held hostage here.  I can't do what

11    I would normally do if it were a live witness because a lot

12    of it is now cumulative.  I'm not going to edit any of the

13    other portions of the deposition which I was almost inclined

14    to do.

15              So the yellow portions will not be played.  All

16    right.

17              MS. DUNN:  Thank you, Your Honor.

18              Does the Court have guidance for how it would like

19    the parties to deal with -- we have several others where

20    there are yellow portions in dispute.

21              THE COURT:  This was very helpful.  The side

22    comments were helpful.

23              Perhaps my having advised that I'm not going to

24    let things that are cumulative -- I mean, the fact that

25    Google has huge volume, we know that.  We've heard that a
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 1   million times.  I don't need to see it again.  All right.

 2          So hopefully that may pare down the issues for you

 3   all.  All right.

 4          MS. DUNN:  Thank you, Your Honor.  We appreciate

 5   it.

 6          THE COURT:  Okay.  And we have a live witness;

 7   right?

 8          MS. DUNN:  Yes, Your Honor.

 9          MS. WOOD:  Your Honor, may I raise one -- actually

10   two administrative matters.

11          THE COURT:  Yes, ma'am.

12          MS. WOOD:  They both relate to scheduling.

13          THE COURT:  Well done.  Well done.

14          MS. WOOD:  I tried.  I thought overnight.

15          The first is just with respect to the timing of

16   the government's rebuttal case should they need to put one

17   on.  As I understand it, the defense is on track to finish

18   by tomorrow.

19          We would just ask with the Court's indulgence that

20   we start a rebuttal case, if any is necessary, on Friday

21   morning.  I'm not sure exactly what time the defense would

22   finish tomorrow, but if we could have the evening to pare

23   down and be efficient in our presentation on Friday morning.

24          THE COURT:  Since you mentioned Friday, my civil

25   docket has expanded a bit on Friday.
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Stephanie Austin, RPR, CRR USDC/EDVA (607) 743-1894

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 1              Why don't we say we'll start this case, if it has

 2    to start, at 10:00 on Friday.  All right.

 3              I should have cleared the civil docket by then.

 4    It does mean most likely tomorrow night you will need to

 5    clear your desks.  All right.

 6              And then as long as we're talking about

 7    administrative matters, my plan is to give both sides --

 8    because we had talked about post-trial matters.

 9              I was going to give you a month to file the

10    revised findings of fact and conclusions of law which would

11    put it at the end of October when those would come in.

12              In fact, why don't we just make it how about

13    Monday, November 4.  All right.

14              MS. WOOD:  Yes, Your Honor.

15              MS. DUNN:  Yes, Your Honor.

16              THE COURT:  That's right before the election.

17              And then I'm going to take about a month -- I have

18    a trial that's going to take up some time in the beginning

19    of November.

20              I'm going to take a month, and I was thinking of

21    setting oral argument, final closing argument, for the first

22    week of December.

23              Would that work on your calendars?

24              MS. DUNN:  Your Honor, I start trial in a

25    different court -- as Your Honor may remember, I had an
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1   original conflict with this trial date. That trial has been

2   moved to December 16th.

3   So it could be that the first week in December

4   will work, but it also is a little tight, but obviously at

5   the Court's pleasure.

6   THE COURT: I mean, we could do it the last week

7   of November. I didn't bring my calendar in. I mean, I

8   would give this case first priority.

9   Again, at this point I'm not going to give you a

10   long amount of time for oral argument.

11   MS. DUNN: I understand.

12   THE COURT: But I would give you a bit more than I

13   did for the opening statements.

14   It also will give -- and to be honest with you,

15   it's my hope that I will have a quasi draft opinion. So

16   that when I have you here for oral argument, it may be an

17   opportunity where I can ask if I have a question still, then

18   I can pose them to you. All right. So that's sort of how I

19   envision that.

20   Why don't we do this. Why don't you all talk

21   about what would work in terms of the argument day. And

22   then I would need to look at my calendar to make sure I

23   haven't pre booked that time for anything, but that's my

24   goal.

25   So I'm not positive we'll get the opinion done

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 1   this year, but it certainly is my hope to perhaps have this

 2   resolved in December.

 3          MS. WOOD:  That's welcome news, Your Honor.  Thank

 4   you.

 5          MS. DUNN:  Certainly, Your Honor.

 6          THE COURT:  That's pending a lot of -- you know,

 7   there are a lot of contingencies.

 8          MS. WOOD:  Understood.

 9          MS. DUNN:  One other question since we're on these

10   matters.

11          We would ask to be told by plaintiffs who they are

12   calling in rebuttal, understanding that Professor Israel is

13   testifying tomorrow, so they obviously can't know that.  But

14   by the end of today, they will have heard the vast majority

15   of our case and they obviously know the depositions that

16   will happen tomorrow in addition to Professor Israel.

17          So if we could be given notice maybe this evening

18   I think could be reasonable for everybody other than

19   obviously responding to Professor Israel.

20          MS. WOOD:  Again, we've been very cooperative in

21   that regard and we'll continue to do that.

22          THE COURT:  You've worked very well together.

23          Again, just so you know for planning purposes,

24   we'll probably take a mid morning break around 10:15, 10:30.

25   Lunch break is at 12.  And then in the afternoon, that may
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 1   be a longer push.  All right.

 2              MS. WOOD:  Understood, Your Honor.

 3              MS. DUNN:  Just for clarity, does cooperative mean

 4   that the plaintiffs intend to tell us this evening who they

 5   will call?

 6              MS. WOOD:  We will tell you as much as we know by

 7   the end of the day.

 8              THE COURT:  All right.

 9              MS. DUNN:  Thank you, Your Honor.

10              THE COURT:  Let's call the witness.

11              MS. DUNN:  Your Honor, Google calls Judith

12   Chevalier.

13              THE COURT SECURITY OFFICER:  Face the deputy

14   clerk.  Raise your right hand.

15   Thereupon,

16                       JUDITH CHEVALIER,

17   having been called as a witness on behalf of the defendant

18   and having been first duly sworn by the Deputy Clerk, was

19   examined and testified as follows:

20                   (Time noted: 9:11 a.m.)

21              THE DEPUTY CLERK:  Thank you.

22              THE COURT SECURITY OFFICER:  You may be seated.

23                     DIRECT EXAMINATION

24   BY MR. JUSTUS:

25   Q    Professor Chevalier, would you please introduce
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                                                              10

Direct examination - J. Chevalier

 1   yourself to the Court and spell your name for the court

 2   reporter?

 3   THE COURT: One second. Are there any books?

 4   MR. JUSTUS: Yes. Let's hand those up.

 5   THE COURT: Okay.

 6   Always a good sign when the books are thin.

 7   BY MR. JUSTUS:

 8   Q   Professor Chevalier, would you please introduce

 9   yourself to the Court and spell your name for the court

10   reporter?

11   A   I'm Judith Chevalier. J-U-D-I-T-H. C-H-E-V-A-L-I-E-R.

12   Q   And where do you work, Professor?

13   A   I'm the William S. Beinecke professor of economics and

14   finance at the Yale School of Management.

15   Q   And what's your educational background?

16   A   So I have a Ph.D. in economics from MIT in 1993. And

17   then before that, a BA in economics from Yale.

18   Q   And what's your primary field of academic research?

19   A   So my primary fields are industrial organization and

20   econometrics. I study -- most of my papers are in the field

21   of industrial organization. I'm particularly interested in

22   the economic effects of new technologies. And I use data

23   and econometric tools to do my work.

24   Q   Let's take a look at your CV which is Tab 1 in the

25   binder that's now been handed out.

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 1              MR. JUSTUS:  Your Honor, we would move to admit

 2   Professor Chevalier's CV into evidence.  It's numbered

 3   DTX 2535.

 4              THE COURT:  2535?

 5              MR. JUSTUS:  Yes, Your Honor.

 6              THE COURT:  All right.

 7              I assume there's no objection?

 8              MR. GUARNERA:  No objection, Your Honor.

 9              THE COURT:  And you are asking us to accept the

10   professor in what field?

11              MR. JUSTUS:  In econometrics and industrial

12   organization.

13              THE COURT:  I assume there's no objection to that?

14              MR. GUARNERA:  No objection.

15              THE COURT:  All right.  She's so qualified.

16      (Defense Exhibit Number 2535 admitted into evidence.)

17   BY MR. JUSTUS:

18   Q    Okay.  Professor, can you please briefly set out the

19   scope of your expert engagement?

20   A    Sure.  So as we recall, this case originally involved

21   the recovery of damages on -- for the government on behalf

22   of the federal agency advertisers, and so I was asked to

23   review the expert reports of Professor Simcoe and Ms. Lim

24   and to evaluate them.

25              Relevantly for today, as part of that, I was asked
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1   to evaluate Professor Simcoe's conclusion that there was an

2   overcharge in AdX due to Google's anticompetitive conduct.

3   And thus, I am evaluating his opinions and analysis of that.

4   Q   And what information did you review to form your

5   opinions?

6   A   So I reviewed the complaint. I reviewed interrogatory

7   responses and other documents that have arisen in this case.

8   I reviewed documents produced by the parties and the third

9   parties. I reviewed academic literature and other public

10   documents. And I reviewed deposition testimony and,

11   importantly, the data that was produced in this case by

12   Google and third parties.

13   Q   Professor Chevalier, where does Professor Simcoe claim

14   there is an overcharge?

15   A   AdX.

16   Q   By contrast, the expert report you submitted in

17   connection with this case presents full stack revenue

18   shares; is that right?

19   A   Yes.

20   Q   So what is a full stack revenue share?

21   A   So a full stack revenue share is the revenues --

22   revenue shares charged between the advertiser and the

23   publisher. Because to have a transaction, you need to go

24   from the advertiser to the publisher. So it includes the

25   revenue share of the buy-side tools and the revenue share of

13

Direct examination - J. Chevalier

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 1   the exchange.

 2   Q    And so why is that full stack figure relevant?

 3   A    Well, you know, the crux of an ad transaction is a

 4   transaction between an advertiser and a publisher.  And so

 5   the buy-side fee -- take rate and the sell-side take rate

 6   both need to be paid.

 7            So both of these take rates are part of -- an

 8   important part of completing the overall transaction.

 9   Q    All right.  Professor, let's go to Tab 2 in your

10   binder.  And we can also put this up on the screen.

11            MR. JUSTUS:  Your Honor, this is DTX 2071 and we

12   would like to move this into evidence.

13            THE COURT:  Any objection?

14            MR. GUARNERA:  No, Your Honor.

15            THE COURT:  All right.  It's in.

16      (Defense Exhibit Number 2071 admitted into evidence.)

17   BY MR. JUSTUS:

18   Q    All right.  Professor, DTX 2071, what is it?

19   A    So this is a figure from my report, and it's a

20   comparison of Google's full stack revenue shares to

21   competitors' full stack revenue shares over the same time

22   period evaluated by Professor Simcoe.

23   Q    So how did you calculate the 36.1 percent competitors'

24   full stack average reflected in that red bar?

25   A    Okay.  So the competitors' full stack average will
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                                                              14

1   include the revenue share from the ad-buying tools, and I

2   used the set of ad-buying tools that are -- for which

3   there's data in this case from the U.S. And I calculate

4   that revenue share which is just the weighted average, and

5   that's about 22 percent.

6   And then I combine that with the weighted average

7   revenue share of third-party exchanges, and that calculation

8   is the same as Professor Simcoe's calculation and it's

9   17.8 percent.

10   So the 36.1 percent is just a compounding of those

11 two fees.

12 Q   And so how do the full stack revenue shares when using

13 Google products compare to the full stack revenue shares

14 when using non-Google products?

15 A   So you can see in this figure I have the green bars

16 represent the Google-to-Google transaction full revenue

17 shares for the U.S. And if you compare that to the

18 competitors' full stack average, you can see that using

19 Google-to-Google tools actually has a lower revenue share.

20 Q   What's the economic significance of that?

21 A   Well, this means that if I think about the full cost of

22 completing or the full revenue share of completing the

23 transaction that needs to be paid from the advertiser to the

24 publisher, it's actually less expensive using Google to

25 Google than using third party to third party on average.

                                                              15

Direct examination - J. Chevalier

1   Q   Does your report include any figures where you break

2   out the full stack fees for individual combinations of third

3   party buy-side and sell-side tools?

4   A   Yes. So I have a figure in my report where I look at

5   individual paths from a particular buy-side tool to a

6   particular sell-side tool, and I present a set of data

7   calculated the exact same way for those paths.

8   The challenge with that is that there are some

9   particular paths for which, you know, the data is not

10   available and so that can't be totally comprehensive. This

11   will include all of the buy-side tools and exchanges for

12   which we have data.

13   Q   Did Professor Simcoe conduct an analysis of full stack

14   revenue shares?

15   A   Professor Simcoe did not conduct an analysis of full

16   stack revenue shares for the purposes of evaluating whether

17   they're super competitive; however, Professor Simcoe

18   calculated full stack revenue shares because in his

19   apportionment analysis, he acknowledged that it's the full

20   stack revenue share that has to be apportioned and

21   ultimately paid by the publisher and the advertiser.

22   Q   So what are the methods Professor Simcoe uses to

23   calculate a but-for take rate?

24   A   So Professor Simcoe uses what he calls the comparables

25   approach and the event study approach.

16

Direct examination - J. Chevalier

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 1   Q    So let's start with his comparables analysis; what is

 2   that?

 3   A    So Professor Simcoe's comparables analysis uses the

 4   average -- weighted average revenue share of competing

 5   exchanges worldwide that he's calculated, and he asserts

 6   that this weighted average revenue share of competitors is a

 7   benchmark for what Google's revenue share would be but for

 8   specific anticompetitive -- alleged anticompetitive conduct.

 9          And that specific conduct that he discusses there

10   and says is linked is the alleged anticompetitive ties

11   between Google and AdX, and AdX and DFP, and also the effect

12   of Unified Pricing Rules, UPRs.

13   Q    So do you agree with the but-for take rate that

14   Professor Simcoe calculates using his comparables approach?

15   A    No.

16   Q    Why not?

17   A    Well, there are numerous flaws with Professor Simcoe's

18   approach, but the most common flaw is that he doesn't

19   connect his analysis to the alleged anticompetitive conduct

20   in any way.

21   Q    What are the other flaws beyond that?

22   A    So at a high level, there are three flaws.

23          First, his focus on the weighted average revenue

24   share ignores meaningful variation across exchanges in time

25   in the revenue shares charged.
```

17

1   Second, his analysis ignores the fact that six of

2   the seven exchanges that he's analyzing have revenue shares

3   that are actually above that weighted average which he's

4   calling the competitive benchmark despite not having been

5   accused of anticompetitive conduct.

6   And then his analysis is very sensitive to small

7   adjustments or tweaks in the analysis that lead to very

8   different results.

9   Q   Well, let's talk about the first flaw you just

10   mentioned.

11   Does Professor Simcoe's comparables analysis

12   compare AdX's processing to the processing of any individual

13   competing exchanges?

14   A   No. He compares to the weighted average.

15   Q   Do you do an analysis comparing AdX's revenue share to

16   individual competitor's revenue shares?

17   A   Yes, I do.

18   Q   Professor Chevalier, can you turn to Tab 3. This is

19   DTX 2069.

20   THE COURT: Any objection?

21   MR. GUARNERA: No objection, Your Honor.

22   THE COURT: All right. It's in.

23   (Defense Exhibit Number 2069 admitted into evidence.)

24   BY MR. JUSTUS:

25   Q   So Professor Chevalier, I'll give you the long

                                                        18

1   admonishment at this time and then just remind you.

2   So this is the start of exhibits that have sealing

3   done to them. So you're going to have two exhibits in your

4   binder. The first is going to be the under-seal version,

5   and the second is going to be a redacted version with

6   competitor names blinded.

7   When you're speaking up in open court, please use

8   the blinded competitor names and just use numbers.

9   A   Okay.

10   THE COURT: Just for the record, so we also have a

11   2069A.

12   MR. JUSTUS: Yes, Your Honor.

13   (Defense Exhibit Number 2069A admitted into evidence.)

14   BY MR. JUSTUS:

15   Q   Okay. Professor, what is this?

16   A   So this is a figure from my report and it shows the

17   U.S. monthly average revenue shares by exchange from a long

18   time period, January 2016 through March 2023, which includes

19   the period that Professor Simcoe is assessing.

20   And here, I am simply showing the monthly average

21   revenue shares for each of these competing exchanges, as

22   well as for AdX.

23   Q   So why do you compare AdX's revenue share to the

24   revenue share charged by other exchanges in the United

25   States and not worldwide?

19

1   A   So there's several reasons. First, it's helpful to

2   remember the starting point of this case was to calculate

3   damages related to the FAA's transactions. And in my

4   report, I show that over 99 percent of the FAA ad purchases

5   were for U.S. users.

6   Further, as I discuss in my report, in Google

7   data, over 90 percent of the spend on U.S. advertisers is

8   spent by U.S. -- sorry, the spend by U.S. advertisers is

9   spent on U.S. consumers. And over 90 percent of the spend

10   on U.S. consumers is spent by U.S. advertisers.

11   So there are many transactions that begin and end

12   in the U.S. We would expect, due to perhaps regulation and

13   other factors, that the U.S. is distinct from the rest of

14   the world.

15   And also, there was one exchange that produced

16   data on a U.S. basis, and so Professor Simcoe throws it out

17   when he undertakes his worldwide analysis. So we get more

18   data when we look at the U.S.

19   Q   What steps did you take to construct your comparison of

20   AdX's revenue share to the revenue share charged by other

21   exchanges in the U.S.?

22   A   So this is simply the monthly average revenue share

23   using a combination of third-party data and AdX data. And

24   it's simply averaged each month and plotted on this chart.

25   Q   Is this the same approach used by Professor Simcoe?

20

Direct examination - J. Chevalier

1   A   Yes.

2   Q   What does the dotted line labeled 17.8 percent

3   represent?

4   A   Okay. So that represents Professor Simcoe's benchmark

5   for U.S. exchanges or the weighted average revenue share.

6   And he calculates that just as an average over that whole

7   2019 to 2023 time period. So you can see that that's just a

8   flat number there, the 17.8 percent.

9   Q   But I thought Professor Simcoe's but-for revenue share

10   calculated using the comparables analysis was 16.2 percent,

11   not the 17.8 percent here?

12   A   So the 17.8 percent is the weighted average revenue

13   share for the U.S., and it is the same as what's in

14   Professor Simcoe's appendix, but the 16.2 percent is the

15   worldwide weighted average revenue share of the competing

16   exchanges.

17   Q   How do the revenue shares of the other exchanges

18   compare to AdX?

19   A   Well, you can see that AdX there in the dark blue is

20   above some and below some of the other exchanges, and that

21   AdX is relatively close to the mean whereas -- you know,

22   some of the other exchanges have quite different revenue

23   shares. So you can see that AdX is really kind of in the

24   range of the other exchanges.

25   Q   What does the gray region of this figure represent?

21

1   A   So to construct the gray region, I took each of the

2   weighted average revenue shares of the exchanges and

3   calculated a standard deviation of that data.

4   The standard deviation is just a tool that

5   economists and statisticians use to describe the amount of

6   variation in data around the mean. And you can see here

7   that I've marked a plus one standard deviation to minus one

8   standard deviation band. That's what's in the gray.

9   Q   And so how does AdX's revenue share compare to that

10   standard deviation?

11   A   You can see that AdX's revenue share is within one

12   standard deviation of the mean of the other exchanges. So

13   while some of the other exchanges are further away, you

14   know, AdX is not substantially far from this mean as

15   measured in this way.

16   Q   So what economic conclusion, if any, do you reach based

17   on a comparison of Google's ad exchange revenue share to the

18   revenue share of competitors?

19   A   So AdX's revenue share is within the ranges of the

20   other exchanges. It is above the mean, but it is not an

21   outlier relative to other exchanges.

22   Q   Did you conduct a similar analysis comparing Google's

23   revenue share to the revenue shares of competitors using

24   worldwide data?

25   A   Yes, I did.

22

Direct examination - J. Chevalier

1   Q   And do your conclusions change when you conduct the

2   analysis using worldwide data?

3   A   So as you've already alluded to, of course, the average

4   is now at 16.2 percent if we use the worldwide. But AdX is

5   still within a standard deviation of the data from the other

6   exchanges.

7   Q   All right. Professor, let's talk about the next flaw

8   you identified.

9   I'm -- can you turn to Tab 5.

10   MR. JUSTUS: And Your Honor, this tab, DTX 2066,

11 is already in evidence.

12   THE COURT: All right.

13 BY MR. JUSTUS:

14 Q   With the same admonishment, Professor, about there's a

15 sealed and an unsealed version.

16   What is DTX 2066?

17 A   Okay. This is specifically looking at Professor

18 Simcoe's calculation. So Professor Simcoe uses the

19 worldwide average revenue shares of competing exchanges, and

20 I am showing that here, and that is -- that has a weighted

21 average of 16.2 percent.

22   But then I'm also showing the revenue shares of

23 the companies that went into that weighted average revenue

24 share, and those are listed individually here on the top of

25 the chart.

                                                              23

Direct examination - J. Chevalier

1   Q   And so what does this figure show about how competing

2   exchange revenue shares compared to Professor Simcoe's

3   benchmark?

4   A   So you can see that six of the seven competing

5   exchanges have revenue shares above Professor Simcoe's

6   benchmark despite not having been accused of anticompetitive

7   conduct. So these exchanges, you know, can't have gotten

8   their revenue shares from anticompetitive conduct and yet

9   they're above the benchmark.

10   Q   Why is that important?

11   A   Well, that's important because it suggests that

12   Professor Simcoe's analysis is invalid. Professor Simcoe

13   hasn't explained why these exchanges can earn revenue shares

14   above the benchmark and not have been accused of

15   anticompetitive conduct.

16   He's interpreted the difference, the entire

17   difference between AdX's revenue share and this benchmark as

18   due to the anticompetitive conduct. Actually, specifically

19   the alleged anticompetitive ties and UPRs. And those

20   exchanges, you know, he can't explain why these exchanges

21   have also positive, you know, differences from the

22   benchmark.

23   Q   Well, what other reasons other than anticompetitive

24   conduct could explain why exchanges are above 16.2 percent?

25   A   So exchanges are differentiated. They provide some

24

1 different services and have different characteristics.

2 Professor Simcoe discusses this in his report and

3 acknowledges this. And so quality differences among the

4 exchanges could explain why they're charging revenue shares

5 above 16.2 percent.

6 Q   Does Professor Simcoe's comparables analysis account

7 for quality differences between exchanges?

8 A   No, it doesn't.

9 Q   How does that affect the validity of his comparables

10 analysis?

11 A   So if he's not accounting for quality, which could be

12 leading to these differences in exchanges and revenue share,

13 his analysis is not valid for the purposes he's putting in.

14 Q   All right. Professor, let's talk about your final

15 criticism.

16   Did you conduct robustness checks on Professor

17 Simcoe's comparables analysis?

18 A   I did.

19 Q   And what did you conclude as a result of those

20 robustness checks?

21 A   I concluded that Professor Simcoe's comparables

22 analysis is very sensitive to reasonable adjustments to his

23 methodologies and is thus invalid.

24 Q   All right. Professor, let's turn to Tab 6 in your

25 binder, and we can also pull that up on the screen.

                                                          25

1   This is Demonstrative Chevalier DX1.

2   What is this -- do you have it?

3   A   Yes.

4   Q   What does this demonstrative show?

5   A   So this demonstrative has the implied AdX overcharge on

6   the Y axis and shows a variety of these adjustments that

7   I've been discussing, and I am using this to show each of

8   the adjustments that I have made to Professor Simcoe's

9   overcharge analysis.

10   Q   And so with your adjustments that you've proposed, do

11   you think that Professor Simcoe's analysis is valid?

12   A   No. Professor Simcoe's analysis is not valid for the

13   reasons I've discussed; however, these adjustments show that

14   reasonable alternatives that make as much or more sense than

15   what Professor Simcoe is doing lead to very different

16   damage -- revenue share calculations.

17   Q   Okay. What is the red line?

18   A   So the red line is showing the 3.6 percentage point

19   overcharge claimed by Professor Simcoe. And again, that's

20   just the difference between AdX's average revenue share of

21   19.8 percent and the 16.2 percent benchmark described by

22   Professor Simcoe.

23   Q   And just so it's clear, the bars are what again?

24   A   Ah. So the bars are each of my alternative approaches.

25   The dark blue part is the new implied AdX overcharge based

26

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1 on this alternative approach, and the light blue bars show

2 the reduction in Professor Simcoe's overcharge.

3 Q   Understood.

4   And I'm sorry, I think you referenced a

5 six-point -- you referenced a 16.2 but-for revenue share.

6 That's worldwide?

7 A   That's worldwide, yes. So he adopts the worldwide as

8 his benchmark, and so that's why I'm comparing this to that.

9 That's why I'm using that as the comparator here.

10 Q   Okay. Let's start with the left-most column.

11   What is that adjustment?

12 A   Okay. So I've already alluded to this, but if I take

13 Professor Simcoe's U.S. comparables analysis using the

14 weighted average revenue share of U.S. exchanges in the

15 exact same way as for the worldwide exchanges, that leads to

16 a 45 percent reduction in Professor Simcoe's overcharge

17 because exchanges in the U.S. charge more than exchanges

18 worldwide on average.

19 Q   Let's look at the second column. What is that

20 adjustment?

21 A   Okay. So company 14 is the largest of the competing

22 exchanges over the time period in terms of overall revenues.

23 And recall that Professor Simcoe's analysis has this

24 conclusion that any difference between the revenue share of

25 the exchange and the weighted average is due to

                                                          27

Direct examination - J. Chevalier

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 1   anticompetitive conduct, but yet we know company 14 has not

 2   been accused of anticompetitive conduct.

 3           So why can't AdX charge at least the revenue share

 4   of company 14 without being -- without that being attributed

 5   to anticompetitive conduct.

 6           So here in this bar, I compare AdX's revenue share

 7   to the revenue share of company 14, which again is the

 8   largest of the competitors for which we have data.

 9   Q    And what's the result of that adjustment?

10   A    So that leads to a reduction in Professor Simcoe's

11   overcharge by roughly half.

12   Q    So what is the next adjustment in bar three?

13   A    So in bar three, I extend the logic that I used in bar

14   two.  None of the large exchanges, none of the exchanges,

15   but none of the large exchanges have been accused of

16   anticompetitive conduct, these competing exchanges.

17           And Professor Simcoe identifies a set of large

18   exchanges on which he sometimes particularly focuses.  And

19   so here I say these large exchanges have not been accused of

20   anticompetitive conduct, Google should be able to charge the

21   revenue share of the largest of these exchanges -- I mean

22   the largest revenue share of these exchanges without that

23   being attributed to anticompetitive conduct.

24           So here, I take as a new benchmark, the worldwide

25   average of a highest annual revenue shares for large
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28

1   competing exchanges, and I assess the overcharge relative to

2   that benchmark.

3   Q   And what's the result?

4   A   That leads to about a two-thirds reduction in Professor

5   Simcoe's overcharge calculation.

6   Q   All right. And then what is the last column?

7   A   So the last column is based on those full stack revenue

8   shares that I showed in the beginning and that comparison to

9   the full stack revenue shares.

10   So we know from that chart that I already showed

11   you, that the full stack revenue shares for Google are

12   actually cheaper than the full stack revenue shares for the

13   averages of competing exchanges.

14   So if I do that calculation, that actually

15   eliminates Professor Simcoe's overcharge because, of course,

16   Google's actually cheaper than the competing exchanges.

17   Q   Okay. Let me just ask a few final questions about the

18   comparables analysis.

19   Professor Simcoe opines that his comparables

20   analysis was conservative because of a principle called

21   strategic complementarity.

22   Are you familiar with that opinion?

23   A   Yes.

24   Q   Do you agree with this assessment that Professor

25   Simcoe's analysis is conservative because of strategic

                                                              29

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 1   complementarity?

 2   A     I don't agree.

 3            So the plaintiffs' theory of harm in this case is

 4   that competitors are stymied in their ability to compete

 5   because of Google's alleged anticompetitive conduct.  So

 6   competitors are disadvantaged by Google's conduct.  And the

 7   response typically affirms to being disadvantaged is to

 8   lower prices, not raise them.  So I don't see why his

 9   analysis is conservative.

10            MR. GUARNERA:  Your Honor, I object.  This is

11   outside the scope of Professor Chevalier's report.

12            THE COURT:  Well, again, I haven't read the

13   report, so it's hard to evaluate that.

14            Do you want to respond?

15            MR. JUSTUS:  Yes, Your Honor.  I actually do think

16   this discussion is in Professor Chevalier's report and I

17   think she was asked about it in her depo.  I could confirm.

18            But in any event, it seems fair game to respond to

19   an opinion offered by Professor Simcoe last week at trial.

20   But I can confirm where it is in her report, if necessary.

21            THE COURT:  You hopefully remember your report.

22            Do you believe that this last line of questioning

23   and your answers is within the scope of the report?

24            THE WITNESS:  So I certainly discuss Professor

25   Simcoe's comparables analysis not meeting the -- I believe
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30

 1   so, but perhaps I should double-check too, but I believe it

 2   is in the scope of my report.

 3   THE COURT: Do you recall indicating in your

 4   report that you disagreed with his characterization of his

 5   analysis as being conservative? That's really where we were

 6   at this point.

 7   THE WITNESS: Yes. And I believe I was certainly

 8   asked about that at my deposition as well. But yes.

 9   THE COURT: All right. Objection overruled.

10   MR. JUSTUS: Thank you, Your Honor.

11   BY MR. JUSTUS:

12   Q   And with that, let's move on to the event study.

13   What analysis does Professor Simcoe do in his

14   event study?

15   A   So in Professor Simcoe's event study, he -- it

16   starts -- it's a regression analysis, it's an empirical

17   analysis which starts from the premise that he assumes that

18   Google is only able to implement UPRs due to the alleged

19   anticompetitive ties between Google Ads and AdX, and AdX and

20   DFP.

21   Professor Simcoe then estimates using his

22   regression, the bump in impressions that Google earns after

23   the implementation of UPRs and UFPA in time, and he assumes

24   that but for the alleged anticompetitive conduct, Google

25   would have had to lower its take rate in order to earn that

                                                          31

Direct examination - J. Chevalier

1   extra bump in impressions. And then he uses his regression

2   to try to estimate by how much.

3   Q   Do you agree with the but-for take rate Professor

4   Simcoe calculates through his event study?

5   A   No, I don't.

6   Q   So what are the key assumptions underlying Professor

7   Simcoe's event study?

8   A   So there are numerous assumptions underlying his event

9   study, but I'll highlight a few.

10   First, Professor Simcoe's event study assumes that

11   the effects he's measuring are due to the alleged

12   anticompetitive conduct of Google.

13   Second, he assumes that publishers were

14   overwhelmingly dissatisfied with UPRs and had to be

15   compensated for accepting UPRs.

16   And third, he assumes that any increase in

17   impressions following UPRs is due to UPRs themselves, not

18   the Unified First Price Auction or quality changes or

19   anything else.

20   Q   Do you believe Professor Simcoe's assumptions are

21   justified?

22   A   No, I do not.

23   Q   So let's start with the first assumption you

24   identified.

25   How does Professor Simcoe connect the increase in

32

1   impressions on AdX after the implementation of UPR with

2   Google's alleged tying conduct?

3   A   He does not.

4   Q   Well, does he do some sort of empirical test to

5   determine whether publishers did not switch away following

6   the launch of UPRs due to the alleged tying conduct?

7   A   No, he does not.

8   Q   All right. Let's move on to the second assumption you

9   identified.

10   Have you seen economic evidence UPRs were

11   universally disliked by publishers?

12   A   No. And indeed, I've seen evidence to the contrary.

13   So as a matter of economic logic, UPRs simplify

14   transactions for publishers and they definitely simplify

15   things for advertisers and create benefits for advertisers.

16   And every transaction involves a publisher and an

17   advertiser. So, you know, if it simplifies things for

18   advertisers, it benefits the ecosystem.

19   Second, I've seen evidence in this case that I

20   cite in my report that UPRs were not overwhelmingly disliked

21   by publishers.

22   Q   Well, let's assume hypothetically if Professor Simcoe

23   were right, that publishers overwhelmingly disliked UPRs,

24   would his event study be a valid way to estimate a but-for

25   revenue share?

33

Direct examination - J. Chevalier

1   A   No, it would not.

2   Q   Why not?

3   A   Well, Professor Simcoe still hasn't addressed the fact

4   that UPRs occur at the same time as other changes or that

5   other changes in the environment occur; and so Professor

6   Simcoe's analysis is still invalid if, for example, UFPA or

7   other factors led to an increase in revenue shares.

8   Q   So what --

9   A   I'm sorry. An increase in impressions. I misspoke.

10   Q   Thanks, Professor.

11   So what factors other than anticompetitive conduct

12   could cause an increase in impressions around the time that

13   UPRs were implemented?

14   A   So as I mentioned before, the transition to the Unified

15   First Price Auction or changes in quality or the market's

16   valuation of quality.

17   Q   Let's talk about the first one.

18   What is, just briefly, UFPA?

19   A   So UFPA is the Unified First Price Auction.

20   Q   Okay. How could the introduction of UFPA have

21   contributed to an increase of impressions on AdX relative to

22   other exchanges?

23   A   Well, we know that UFPA was a simplification of the

24   auction. We know that it reduced transactions cost and it

25   was a transition to what was emerging as an industry

34

Direct examination - J. Chevalier

1   standard.

2   In economics, if a transaction cost falls, you

3   would expect to see more transactions. So that's, you know,

4   economic logic suggests that UFPA could increase

5   transactions, and I have also seen evidence in this case

6   that I cite in my report that it -- that UFPA was welcomed

7   by market participants.

8   Q   Well, does Professor Simcoe's event study account for

9   the impact of UFPA on AdX impressions?

10   A   No, it does not at all.

11   Q   So what happens to Professor Simcoe's event study if

12   the increase in impressions on AdX was due in part in the

13   movement to UFP?

14   Let me restart that question.

15   What happens to Professor Simcoe's event study if

16   the increase in impressions on AdX was due in part to the

17   movement to UFPA?

18   A   So Professor Simcoe's event study is simply invalid in

19   that case. His event study requires that the bump in

20   impressions was due to the implementations -- implementation

21   of UPR and, by extension, the alleged anticompetitive

22   conduct.

23   Q   So moving on to quality.

24   Does Professor Simcoe include any control in his

25   event study to address changes in quality that might have

35

Direct examination - J. Chevalier

1   impacted impressions?

2   A   No.

3   Q   Why is that a problem?

4   A   So we know this is a dynamic industry and firms are

5   improving their products. If quality changes, then

6   impressions will change, and his regression assumes that

7   increases in impression are due to UPR and, by extension,

8   the anticompetitive conduct.

9   Q   Well, does Professor Simcoe's exchange fixed effects

10 variable account for changes in quality?

11 A   No, it doesn't.

12 Q   Why not?

13 A   Well, Professor Simcoe's exchange fixed effects

14 variable is constructed to allow each exchange to have an

15 average baseline level of impressions. But if quality

16 changes, then, you know, that his specification can't

17 account for that.

18 Q   Well, could you give some examples of the types of

19 changes in quality that Professor Simcoe's exchange fixed

20 effects variable cannot account for?

21 A   Sure. So in my report, I discuss the Ariane calendars.

22   And these calendars chronical the improvements

23 that Google is making to its products and those improvements

24 are typically, you know, discrete changes that are being

25 made.

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Direct examination - J. Chevalier

1   And so, for example, one of them is something

2   called bid translation. And bid translation or a bid

3   translation improvement, and that's in January 2020, and

4   it's at around -- you know, so that's in Professor Simcoe's

5   window.

6   And, you know, if that improvement -- actually

7   Google estimates that improvement leads to an over

8   1.8 percent increase in impressions, that improvement -- you

9   know, that improvement if it's not -- it can't be accounted

10   for by the fixed effects and it occurs at a discrete moment

11   in time during the window, that anything like that is a

12   problem.

13   Furthermore, any changes in the environment which

14   lead to a change in the value of quantity -- quality.

15   So, for example, during COVID, publishers might

16   value the quality of ads better due to the -- different ads

17   differently due to the information environment or perhaps

18   advertisers are more picky about where they advertise.

19   That's a change in the environment that can't --

20   that changes the value of quality that might not even be

21   changing because, you know, malware, spamware, filtering

22   targeting safety features would be more valued in that

23   situation.

24   Q   And so when you say something is a problem for

25   Professor Simcoe's model, what does that mean?

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Direct examination - J. Chevalier

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 1   A     I mean that, again, Professor Simcoe's model assumes

 2   that increases in impressions are due to UPR and, by

 3   extension, the alleged anticompetitive conduct.

 4            And so if increases in impression are due to any

 5   of these factors or partially due to these factors, his

 6   analysis is not valid.

 7   Q     Well, does Professor Simcoe make any other attempts to

 8   account for differences in quality in his event study?

 9   A     So in his surrebuttal, Professor Simcoe uses linear

10   time trends for AdX and the competing exchanges in order to

11   adjust for quality.

12   Q     And do those linear time trends account for changes in

13   quality over time?

14   A     They account for something that's occurring in a very

15   smooth linear fashion.  Because a linear time trend is a

16   variable that just increases in lockstep in time.  And so it

17   doesn't account for, you know, discrete events like product

18   introductions.

19   Q     So the changes in quality you just discussed a couple

20   minutes ago, do the linear time trends account for those?

21   A     No, they wouldn't.

22   Q     So what happens to Professor Simcoe's event study if

23   the increased impressions on AdX were due to an increase in

24   AdX quality of the type you just discussed?

25   A     So it would render Professor Simcoe's event study
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Direct examination - J. Chevalier

1 invalid.

2 Q   Professor, what is your understanding of Professor

3 Simcoe's opinion on how AdX winning additional impressions

4 after the introduction of UPR impacted rival exchanges?

5 A   So Professor Simcoe says in his report that AdX's

6 winning impressions at the expense of and I think to the

7 detriment of rival exchanges.

8   But yet, his model can't distinguish between a

9 shift in impressions or a growth in impressions.

10 Q   Well, do you agree that AdX won additional impressions

11 after UPR to the detriment of rival exchanges?

12 A   So Professor Simcoe's analysis does not show that, and

13 my own analysis does not show that. And in fact, it

14 suggests that there's a market expansion.

15 Q   What do you mean?

16 A   So I undertake a specification in which I adjust

17 Professor Simcoe's analysis a bit in order to separately

18 measure the growth of impressions on AdX and the growth of

19 impressions on competing exchanges relative to trend; and I

20 find that while AdX's impressions grow relative to trend,

21 rival exchange impressions do not statistically

22 significantly fall relative to trend.

23   So this is consistent with a market expansion.

24 Q   And so what's the economic significance of that

25 finding?

39

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Direct examination - J. Chevalier

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 1   A     So if the allegedly anticompetitive conduct, which

 2   again Professor Simcoe very specifically here is focusing on

 3   the alleged anticompetitive ties.

 4           If the alleged anticompetitive conduct caused a

 5   market expansion, how is it anticompetitive?

 6   Q     Are there any other flaws in Professor Simcoe's event

 7   study?

 8   A     Yes.  There are a number of flaws and I show that it's

 9   sensitive to reasonable alternative specifications.

10   Q     All right.  Well, let's bring up a demonstrative.  It's

11   Tab 8 in the binder and it's also on the screen.

12           So Professor, what does this demonstrative show?

13   A     So this demonstrative is very similar in structure to

14   the one that I showed before.  It shows the benchmark 3.6

15   percentage point overcharge claimed by Professor Simcoe, and

16   then it shows some illustrative adjustments to Professor

17   Simcoe's approach.

18   Q     Let's talk about the first two columns.

19           How did you decide to include these adjustments?

20   A     So Professor Simcoe in constructing his analysis, you

21   know, chooses a specific window over which to look at the

22   data.  And we actually have more data, and he does in his

23   appendix, does show a variety of adjustments, and one of

24   them is showing a worldwide window expanding.

25           And I show these because Professor Simcoe
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                                                            40

1 characterizes these adjustments as not making a big impact,

2 but indeed I think they do.

3 Q   I'm sorry, Professor Chevalier, just to make sure I'm

4 clear.

5   Are these first two columns Professor Simcoe's

6 sensitivities or your sensitivities?

7 A   Sorry. So yes, these first two columns are

8 sensitivities that appear in Professor Simcoe's report. And

9 you know, he characterizes the sensitivities that he does

10 as, you know, not changing his conclusions very much.

11 Q   Do you agree with that?

12 A   No.

13 Q   All right. Well, let's talk about the first column.

14   What does it reflect?

15 A   Okay. So the first one, as I mentioned, we don't -- he

16 doesn't in his main specification, he doesn't use all of the

17 data, and in the -- in a robustness specification, he looks

18 at expanding the window by six months.

19   And here, you can see that that leads to a

20 22 percent reduction in Professor Simcoe's overcharge.

21   I find that economically significant.

22 Q   All right. Well, what is the adjustment reflected in

23 the second column?

24 A   So Professor Simcoe uses an instrumental variables

25 analysis in his specification in order to control for what

                                                          41

1 we call the endogeneity of the take rate that he's using.

2 And in his robustness, he undertakes some alternative

3 specifications.

4   And arguably, using a longer lag in trying to

5 construct an instrumental variable is a better

6 specification, and that leads to a 31 percent reduction in

7 Professor Simcoe's overcharge.

8 Q   So with these adjustments then, do you think Professor

9 Simcoe's event study is okay?

10 A   No. I think his event study is not valid for the

11 reasons I've described.

12   This just illustrates that there are economically

13 meaningful changes in the specification adjustments that he

14 makes.

15 Q   And what's the significance of there being economically

16 meaningful changes in these adjustments?

17 A   So given that there are, you know, these small changes

18 in specification lead to economically meaningful

19 adjustments, you know, suggests that Professor Simcoe's

20 event analysis is not valid.

21 Q   Okay. So these last two columns, what do they

22 represent?

23 A   So Professor Simcoe in all of the specifications that

24 we've been talking about has been looking at the increment

25 or bump in AdX impressions following the implementation of

42

1   UPRs; however, if the idea is that AdX gained from

2   implementing UPRs, then the gain should be measured not just

3   by impressions but by revenue or net revenue because firms

4   maximize profits.

5   That's sort of fundamental to what firms are

6   trying to to do, the objective of the firm, and revenues and

7   net revenues are closer to profits than impressions.

8   Q   So what happens to Professor Simcoe's results if the

9   analysis is run on revenues rather than impressions?

10   A   So if the analysis is run on revenues rather than

11   impressions, actually AdX does not gain a statistically

12   significant revenue bump following the implementation of

13   UPRs.

14   And so there's no extra revenue -- significant

15   extra revenue to explain. And so therefore, Professor

16   Simcoe's overcharge is completely eliminated when we use

17   revenue.

18   Q   So let's go to Tab 9.

19   MR. JUSTUS: This is DTX 2043, and we'd like to

20   move this in, Your Honor.

21   THE COURT: Any objection?

22   MR. GUARNERA: No, Your Honor.

23   THE COURT: All right. It's in.

24   (Defense Exhibit Numbers 2043 and 2043A admitted into

25   evidence.)

43

Direct examination - J. Chevalier

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 1  BY MR. JUSTUS:

 2  Q    Professor, same story regarding sealed and unsealed.

 3           THE COURT:  There is also an A.

 4           MR. JUSTUS:  Yes, Your Honor.

 5  BY MR. JUSTUS:

 6  Q    What is this?

 7  A    So this maybe makes more intuitive these specifications

 8  that I just talked about.  This is just a graph of monthly

 9  gross revenue of AdX and competing exchanges for U.S.

10  transactions over the time window which includes the

11  implementation of UPR.

12           And so this is the same time window in Professor

13  Simcoe's event study.

14  Q    And what does this -- what's the significance of this

15  figure?

16  A    So in this figure, AdX is plotted against competing

17  exchanges, and you can see when we look at revenue, the

18  regression finding that I just described is not surprising.

19           AdX's revenue doesn't grow relative to competing

20  exchanges in any visible way here following the

21  implementation of UPR.

22  Q    And so what's the economic significance of that?

23  A    So again, if AdX or Google is gaining from the

24  implementation of UPRs, and by extension from the

25  anticompetitive conduct, there's a bump in impressions but
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 1   we don't see AdX gaining revenue relative to these competing

 2   exchanges.

 3            And again, revenue and net revenue are closer to

 4   what firms maximize.  Firms maximize profit.  So we don't

 5   see the benefit here and we don't see why -- you know, we

 6   don't see any unusual growth for AdX in this picture.

 7   Q    All right.  Moving on to our last topic, Professor

 8   Simcoe's apportionment analysis.

 9            How does Professor Simcoe apportion his AdX

10   overcharge between advertisers and publishers?

11   A    So Professor Simcoe undertakes an analysis in which he

12   uses the Google GAM log-level data and he undertakes a

13   simulation in which he tries to estimate the relevant

14   elasticity of demand of publishers and advertisers.  And

15   it's that relative elasticity of demand that leads to his

16   apportionment shares.

17   Q    So can these elasticities he calculates be used as a

18   valid way to opine on the choices available to publishers

19   and advertisers?

20   A    No.  As he acknowledges in his report, these

21   elasticities can be due to a variety -- these relative

22   elasticities can be due to a variety of factors, and they're

23   a variety of factors other than publisher choices.  So for

24   example, publisher's inventory is fundamentally perishable

25   whereas advertisers should be more patient.
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Direct examination - J. Chevalier

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 1   Q    So when Professor Simcoe apportions the impact of an

 2   AdX overcharge, does he use the AdX take rate?

 3   A    No, he doesn't.  In fact, in this regard I think we

 4   might agree.

 5        So Professor Simcoe actually uses the full stack

 6   take rate in his apportionment analysis.

 7        Actually, before he undertakes the apportionment

 8   analysis, he inserts his measure of the AdX overcharge into

 9   a full stack take rate.  He calls it the stack wide take

10   rate.  And he calculates what he calls the stack wide

11   overcharge, and he says that this stack wide overcharge is a

12   measure of the harm to publishers and advertisers.

13        Then, he uses the stack wide take rate to

14   apportion the overcharge to advertisers and publishers, and

15   in doing so, you know, acknowledges that it's the stack wide

16   take rate that you have to use when thinking about this kind

17   of analysis.

18   Q    And how does Google's stack wide take rate compare to

19   the stack wide take rate of competitors?

20   A    It's lower.

21        MR. JUSTUS:  So I'll pass the witness, Your Honor.

22        THE COURT:  All right.  Cross-examination.

23        MR. GUARNERA:  We have binders, Your Honor.

24        THE COURT:  All right.

25        MR. GUARNERA:  Does Professor Chevalier have the
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 1   thicker binder as well?

 2             MR. JUSTUS:  Yes.

 3             MR. GUARNERA:  Thank you.

 4             THE COURT:  Go ahead.

 5                      CROSS-EXAMINATION

 6   BY MR. GUARNERA:

 7   Q    Good morning, Professor Chevalier.  I'm Dan Guarnera.

 8   I'm an attorney for the Department of Justice.

 9   A    Good morning.

10   Q    Professor Chevalier, this case is not the first time

11   you've testified as an expert for Google; is it?

12   A    I assume you're including deposition testimony there?

13   Q    Yes, please.

14   A    Okay.  Yes, I did once.  I was once retained by Google

15   and was deposed in a case a number of years ago involving

16   Google Books.

17   Q    And at the time of your deposition, you were working as

18   an expert for Google in another case; correct?

19   A    I'm sorry, at the time of the deposition I just

20   referred to?

21   Q    At the time of the deposition you had in this case, you

22   were working for Google on another matter?

23   A    Yes.

24   Q    Okay.  And without giving any specifics, just yes or

25   no, are you currently engaged by Google as an expert in any
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Stephanie Austin, RPR, CRR USDC/EDVA (607) 743-1894

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 1   other cases?

 2   A    Yes.

 3   Q    Professor Chevalier, you're not offering an opinion

 4   about the proper market definition for any of the ad tech

 5   tools at issue in this case; is that right?

 6   A    I am not.

 7   Q    In fact, your analysis assumes that plaintiffs'

 8   allegations on market definition are taken as given;

 9   correct?

10   A    In the sense that I use Professor Simcoe's data

11   processing steps and you include the transactions that he

12   includes, I am indeed using effectively those market

13   definitions in my analysis.

14   Q    Okay.  Could you open your binder to your report,

15   paragraph seven, footnote three.  I just want to make sure I

16   understand your last answer.

17          I think paragraph seven, footnote three, says, For

18   purposes of this report, in my evaluation of the alleged

19   advertiser harm --

20   A    Sorry.

21   Q    I'm sorry.  I'll wait.

22          THE COURT:  I don't know.  That wasn't an unclear

23   answer.

24          What are you clarifying by referring to this?  She

25   has said that she has taken -- she's assuming it for
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                                                            48

1   purposes of her analysis.

2   MR. GUARNERA: Understood, Your Honor. I'm sorry,

3   perhaps I misheard Professor Chevalier's answer.

4   BY MR. GUARNERA:

5   Q   Professor, are you offering any conclusion about

6   whether or not Google has market power in any market at

7   issue in this case?

8   A   I am not.

9   Q   And do you have an opinion on any of the geographic

10   markets alleged in this case?

11   A   So I have an opinion about the appropriate geographic

12   markets for my analysis, but I am not opining on the market

13   definition -- geographic market definition put forth by the

14   plaintiffs.

15   Q   And are you aware that the plaintiffs in their original

16   complaints in this matter alleged a worldwide market as well

17   as a United States market?

18   A   I am aware of that.

19   Q   And you're not offering any conclusion about whether or

20   not any conduct at issue in this case is anticompetitive; is

21   that right?

22   A   I am not.

23   Q   Nor are you offering a conclusion about whether any

24   conduct at issue in this case is pro competitive?

25   A   I am not.

49

1   Q   And I think as you testified on direct, your original

2   focus in this case was to evaluate questions related to

3   damages in the reports of Professor Simcoe and Ms. Lim; is

4   that right?

5   A   Yes. I think both Professor Simcoe and Ms. Lim's

6   reports were about damages and mine was too.

7   Q   And in your report, you argued that the use of a

8   10 percent but-for AdX revenue share to compute damages is

9   inappropriate; is that right?

10   A   Oh, absolutely. Yes.

11   Q   And notwithstanding your argument, however, Google

12   tendered the damages sought by the United States in this

13   case based on a 10 percent but-for AdX take rate; correct?

14   A   That's my understanding, yes.

15   Q   In your report, you don't identify a specific but-for

16   take rate associated with the conduct that Professor Simcoe

17   evaluates; correct?

18   A   No. In my report, I demonstrate that Professor Simcoe

19   has not shown a but-for take rate.

20   Q   But you don't put forward what you would consider to be

21   the correct but-for take rate?

22   A   No, I do not.

23   Q   And your report doesn't reach the conclusion that AdX's

24   take rate is in fact at a competitive level; correct?

25   A   My report does not -- I mean, my report does not opine

                                                              50

Cross-examination - J. Chevalier

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 1   on that, no.
 2   Q    And similarly, your report doesn't reach the conclusion
 3   that there is no AdX overcharge; correct?
 4   A    My report reaches the conclusion that an AdX overcharge
 5   has not been demonstrated, and I show some evidence which I
 6   think is probative to whether AdX's fees are high.
 7   Q    But you never reach a conclusion that in fact there is
 8   no AdX overcharge; correct?
 9   A    Right.  I think if you read my summary of conclusions,
10   I don't -- I don't offer an opinion there.
11   Q    Understood.
12            Professor, do you take issue with the approach of
13   using a benchmark to identify a potential overcharge by one
14   player in a market?
15   A    So benchmark analyses can be used in a variety of
16   circumstances and they're widely accepted.  Not in this way,
17   of course, but yes.
18   Q    And in finding the proper comparator, it's important to
19   identify a market that is similar to the -- strike that
20   question.
21            As a general matter, do you agree that if one firm
22   in a market is accused of charging super competitive prices,
23   the prices charged by other firms in that market can be
24   elevated in response?
25   A    In some circumstances, that can be true.
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                                                              51

1   Q   And that's the idea of strategic complementarity;

2   correct?

3   A   That is the idea of -- well, not exactly, but yes,

4   close enough.

5   Q   Okay. We'll take close enough.

6   And there's nothing inherently inappropriate as an

7   economic matter in looking at the prices charged by firms

8   that lack market power and comparing their prices to those

9   of a firm with market power; correct?

10   A   That's not a benchmark analysis to start with your

11   beginning question, but I mean, you could certainly look at

12   them if you control for other factors that lead to price

13   differences.

14   Q   And again, if there is strategic complementarity of a

15   market, that approach would actually be conservative with

16   respect to the difference between the firm charging super

17   competitive prices and competitors; correct?

18   A   In some circumstances it may be, but we wouldn't be

19   able to know by how much or if it is.

20   Q   And you criticized Professor Simcoe for failing to

21   account for quality differences in his comparables analysis;

22   correct?

23   A   Yes.

24   Q   But you did not attempt to calculate a quality adjusted

25   competitive take rate yourself; correct?

                                                              52

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 1   A    I did not.  I discuss evidence that quality differs but
 2   I did not calculate a quality adjusted take rate.
 3   Q    And you didn't do any independent assessment of the
 4   quality of AdX versus other exchanges; correct?
 5   A    I discuss evidence to that effect in my case -- in my
 6   report, but I don't undertake an econometric analysis.
 7   Q    And you don't come to any conclusion that there is in
 8   fact a quality difference between AdX and any other
 9   exchange?
10   A    I think both Professor Simcoe in his report and I
11   acknowledge that there are quality differences, and that I
12   put forth evidence that AdX is generally considered to be of
13   high quality, but I don't analyze how much higher quality is
14   AdX.
15   Q    Or indeed, whether in fact AdX is higher quality at
16   all, you don't reach a conclusion on that specific question;
17   correct?
18   A    Right.  I provide evidence but I don't have a formal
19   conclusion because I didn't conduct a full analysis.
20   Q    And similarly, you don't have an opinion one way or the
21   other on whether publishers' perceptions of an exchange's
22   quality are related to the scale of that exchange; correct?
23   A    I have not in my report offered an impression of that.
24   Scale may impact quality for some quality variables and
25   perhaps not for others.
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53

1 Q   But there are -- you would agree that there are some

2 quality variables that would be affected by scale; correct?

3 A   I mean, this is quite abstract, but some quality things

4 may be impacted by scale, sure.

5 Q   Okay. I'd like to turn to your Demonstrative 1.

6 A   Do I have that in the binder or only on the screen?

7 Q   You can go back to the binder you had originally.

8 A   Okay. Maybe I'll just go to the screen.

9 Q   Okay.

10 A   Thank you. It's okay. Thank you. I'm going to use

11 the screen.

12 Q   So the left-most bar, as you testified, is adjustment

13 based on a worldwide versus U.S. comparables analysis;

14 correct?

15 A   Yes.

16 Q   AdX operates globally; correct?

17 A   AdX operates globally, but for the reasons I described,

18 I think the U.S. is more appropriate.

19 Q   My question was AdX operates globally; yes or no?

20 A   Yes.

21 Q   Okay. And AdX offers inventory on websites that are

22 viewed by users all over the world?

23 A   Sorry, I just lost track of your thought. Go ahead and

24 say it again. Sorry.

25 Q   AdX offers inventory on websites that are viewed by

54

Cross-examination - J. Chevalier

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 1   users all over the world?

 2   A    Yes.

 3   Q    And AdX collects revenue from advertisers located all

 4   over the world?

 5   A    Yes.

 6   Q    And AdX services publishers located all over the world?

 7   A    Yes.

 8   Q    Okay.  And this first bar on your Demonstrative 1, it

 9   still shows an implied overcharge; correct?

10   A    Yes.

11   Q    Okay.  Moving to the next bar to the right.

12            This one also shows an implied overcharge;

13   correct?

14   A    Yes.  This small tweak in Professor Simcoe's flawed

15   analysis still shows an overcharge.

16   Q    Professor, I would ask when it's a yes-or-no question,

17   to try to answer yes or no if you would.

18   A    Okay.  Yes.

19   Q    Okay.  And this is based solely on the worldwide, so

20   we're back to worldwide, average revenue share of one

21   exchange; correct?

22   A    Sorry.  Are you talking about bar two or bar three?

23   Q    Bar two.

24   A    Bar two.  Yes, one exchange.

25   Q    Okay.  Now, I'd like to look at your Exhibit 10 from
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55

 1 your report, which is in your small binder as -- excuse me

 2 one second.

 3   Yes, I'm actually -- yes. So if you open your

 4 report to Exhibit 10. There we go. Thank you.

 5   So this -- this is the source of the data used in

 6 that second bar in your demonstrative; correct?

 7 A   Correct.

 8 Q   And the number that you're using for the company 14

 9 worldwide average revenue share is in cell J3; is that

10 correct?

11 A   Yes.

12 Q   Okay. And that's the highest revenue share of any of

13 the exchanges -- any of the large exchanges on this chart;

14 correct? Which are companies 14, 9, 7, 12 and 11?

15 A   Over that time period, yes, it is.

16 Q   Okay. So just to be clear, this bar -- the second bar

17 on your demonstrative selects the large exchange with the

18 highest take rate of any of the third-party exchanges?

19 A   Yes. The largest exchange has the highest take rate.

20 Q   Okay. And if you had chosen any of the other five

21 large exchanges, the effect on Professor Simcoe's overcharge

22 analysis would be smaller; correct?

23 A   Yes.

24 Q   And you didn't do any analysis to find that company 14

25 is a closer comparator to AdX than any of the other large

                                                              56

1   exchanges listed in figure 10 -- Exhibit 10; correct?

2   A   No, other than it's the largest, so thus more similar

3   to AdX. But yes.

4   Q   But in terms of types of customers or types of

5   impressions served, you haven't analyzed whether --

6   A   No.

7   Q   -- company 14 is closer to AdX than anything else?

8   A   Sorry, I didn't mean to interrupt you.

9   Q   No problem.

10 A   No.

11 Q   Okay. And do you know offhand the difference in scale

12 between company 14 and AdX?

13 A   I think that data is in my report and I don't remember

14 quite off the top of my head, no.

15 Q   Okay. Moving to the third bar, this bar takes the

16 average -- this bar takes the large exchange that has the

17 highest take rate in any given year and then averages it;

18 right?

19 A   Right.

20 Q   Okay.

21 A   Well, of the large.

22 Q   Of the large exchanges; right?

23 A   Sorry, you might have said that. I'm sorry. Large,

24 yes.

25 Q   Great. And if we could go back actually to figure --

57

1   Exhibit 10 that we had up a moment ago. And if we could

2   zoom in back -- there we go. Thanks.

3   So that's using, according to the notes in your

4   demonstrative cell 12J, so that's the 18.6, all the way on

5   the bottom row next to the right-most column?

6   A   Right.

7   Q   Okay. And if you look immediately above that, the

8   large competing exchanges weighted average is actually

9   15.6 percent; right?

10   A   Yes.

11   Q   So if you take all of the large exchanges, their

12   average take rate over this period is 15.6 percent?

13   A   Yes.

14   Q   Which is actually lower than the 16.2 percent that

15   you're using based in this chart as the comparable -- or as

16   Professor Simcoe's benchmark; right?

17   A   Yes. I think he also presents this -- he presented

18   this number in his testimony, yes.

19   Q   Okay.

20   MR. GUARNERA: You can pull that down, Mr. Klein.

21   Thank you.

22   BY MR. GUARNERA:

23   Q   And again, for the third bar on this chart, there's

24   still an implied overcharge; right?

25   A   I don't have it in front -- oh, yeah, there we are.

                                                        58

1   Yes. Yes.

2   Q   And any overcharge made possible by anticompetitive

3   conduct causes harm; right?

4   A   Yes.

5   Q   A small harm is still a harm?

6   A   A small harm is still a harm, if one can find it, yes.

7   Q   Now, you talked about the difference between your

8   approach which looked at the seven different exchanges and

9   the take rates that they charged over time versus Professor

10   Simcoe's approach which looked at individual transactions;

11   is that right?

12   A   Professor Simcoe's result doesn't really look at

13   individual transactions.

14   Q   He looks at billions of impressions, correct, from

15   AdX's data?

16   A   And takes an average.

17   Q   Yes or no.

18   Let me start again.

19   He looks at a data set provided by Google;

20   correct?

21   A   Yes.

22   Q   And that data set includes billions of impressions?

23   A   Yes.

24   Q   Okay. And he looks at the take rates on those

25   impressions?

                                                        59

Cross-examination - J. Chevalier

1 A   Yes.

2 Q   And then he calculates what the weighted average is for

3 the relevant period that he was looking at; correct?

4 A   You're just talking about the AdX part now. Yes, he

5 calculates the weighted average.

6 Q   And he does the same for the third-party exchanges as

7 well?

8 A   Yes. We both do.

9 Q   And again, taking each individual transaction and the

10 take rate charged on that transaction as the source of his

11 data analysis; correct?

12 A   Yes. That's where the averages have to come from, yes.

13 Q   Right. And that's why Professor Simcoe finds that

14 there's no concern about standard deviation, correct,

15 because he's relying on billions of data points?

16 A   Professor Simcoe -- No, I don't think that's right.

17   Professor Simcoe also in his report says that the

18 month-to-month variation in take rates is due to

19 idiosyncratic factors and should be ignored.

20 Q   Let me try to be maybe a little bit clearer.

21   The difference in standard -- the standard

22 deviation that you were talking about is explained by the

23 fact of whether you're looking at billions of impressions as

24 a data set versus seven exchanges take rates over time;

25 correct?

60

Cross-examination - J. Chevalier

1   MR. JUSTUS: Objection, Your Honor.

2   THE COURT: Sustained.

3   BY MR. GUARNERA:

4   Q   Professor Chevalier, have you reviewed evidence on

5   whether exchanges experimented with lowering their take

6   rates, third-party exchanges?

7   A   I think I have seen some documents to that effect.

8   Q   And do you recall offhand the -- whether those

9   exchanges were able to increase their scale by lowering

10   their take rates?

11   A   I haven't conducted a systematic study of that.

12   Q   Okay. Did you analyze statistically the role of

13   strategic complementarity in this market at all?

14   A   Neither I nor Professor Simcoe did.

15   Q   I'd like to talk now about the full stack take rate

16   analysis because that's the fourth bar in your Demonstrative

17   1; correct?

18   A   Correct.

19   Q   And to be clear, when you say a full stack take rate,

20   that doesn't actually cover the full ad tech stack; right?

21   A   So it includes the buy-side tools and the sell-side

22   tools.

23   Q   But it does not include a publisher ad exchange -- or a

24   publisher ad server? Excuse me.

25   A   Right. It does not include -- when we calculate full

                                                        61

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 1   stack, neither Professor Simcoe nor I use the publisher ad

 2   exchange fees.

 3   Q    Right.  So just to be clear, your full stack take rate

 4   does not include publisher ad server fees?

 5   A    Correct.

 6   Q    Okay.  You just mean the ad exchange plus the ad-buying

 7   tool; correct?

 8   A    Yes.

 9   Q    And some of those buying tools are demand-side

10   platforms?

11   A    Some of those buying tools are DSPs, yes.

12   Q    And some of the buying tools are advertiser ad

13   networks; correct?

14   A    So I believe that advertiser ad network is a term used

15   in this case.  I look at the set of buying tools, and I

16   don't have an opinion about which of these definitions they

17   fall into.

18   Q    Okay.

19           THE COURT:  I want to take the morning break now.

20   We'll be back in at quarter of 11.  All right.

21           MR. GUARNERA:  Yes, Your Honor.

22               (A brief recess was taken.)

23           THE COURT:  You may continue.

24   BY MR. GUARNERA:

25   Q    Professor Chevalier, I'd like to go back to DTX 2067
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                                                            62

1   which you were shown on direct and, remember, this is one

2   where there's a redacted and an unredacted version.

3   So Professor Chevalier, this Figure 11 from your

4   report, it shows, and I'm reading the notes, the monthly

5   average revenue shares for each of the seven exchanges

6   included in this chart; correct?

7   A   Yes.

8   I think you said I was shown this on direct, is

9   that what you said? This isn't the same one but I know this

10   one.

11   Q   I apologize.

12   A   It's fine. It's great.

13   MR. JUSTUS: To help to clarify, I think she was

14   shown the U.S. version.

15   MR. GUARNERA: Okay. Let's go back. Okay.

16   BY MR. GUARNERA:

17   Q   Both the charts show your standard deviation

18   calculation; correct?

19   A   Yes.

20   Q   That we were talking about before?

21   A   Yes.

22   Q   Okay. So in other words, you take the average -- the

23   average take rate per exchange on a monthly basis and chart

24   again that exchange's monthly average take rate on this

25   chart; correct?

63

1   A   Yes.

2   Q   Okay. And so for example, if company 9 had two

3   transactions in a given month, one at 15 percent, one at

4   16 percent, this chart would represent 15.5 percent as that

5   exchange's take rate for that month; right?

6   A   Right.

7   Q   Okay. And your chart -- excuse me.

8   Professor Simcoe, on the other hand, looked at

9   weighted averages of all impressions in all exchanges in

10   this data set; correct?

11   A   I also look at weighted -- at the weights. But yes, he

12   does the weighted average for not everything in the chart

13   but everything in that window.

14   Q   Right. Professor Simcoe's report calculates a standard

15   deviation -- his rebuttal report calculates a standard

16   deviation based on the billions of impressions that he looks

17   at; correct?

18   We can turn to paragraph 68 of his rebuttal report

19   which is page 29 of his rebuttal report if that's helpful.

20   A   Yes, I know what you're referring to. Yes.

21   Q   Okay.

22   A   He calculates a standard deviation using the individual

23   transactions --

24   Q   And that standard deviation was --

25   A   -- as his benchmark for the standard deviation.

64

Cross-examination - J. Chevalier

1   Q   And that deviation is almost indistinguishable from

2   zero; correct?

3   A   The way he calculated it, yes.

4   Q   Okay. Your chart here in Figure 11 does not weight by

5   exchange volume; correct?

6   A   This chart -- I'm not quite sure how you would do that

7   in a chart where you're showing these over time.

8   But no, these are just the revenue shares.

9   Q   Okay. Only your dotted line attempts to average again

10 each of the seven individual exchange monthly take rates;

11 correct? The dotted line in this chart.

12 A   In this chart -- the other exhibit we showed, of

13 course, I take the averages for the exchanges.

14   But yes, this chart, this 16.2 percent is from

15 Professor Simcoe's report.

16 Q   Okay. And again, just taking one month as an example,

17 take company 9 -- let's say company 9, January 2019.

18   That exchange could have two transactions for that

19 entire month; correct?

20   And it would show up as the average of those two

21 transactions; is that right?

22 A   Yes. Actually let me point out that some of these -- I

23 believe that some of these competitor exchanges actually

24 only reported some monthly data. So in principle, yes.

25 Q   But my point is, by looking at any of these colored

                                                              65

Cross-examination - J. Chevalier

1   lines in this chart, there's no way to tell how many

2   transactions that exchange processed in a given month?

3   A   Right.

4   Q   Okay. And you don't give more weight to take rates of

5   exchanges with greater scale in this chart; correct?

6   A   In this chart, no.

7   Q   Nor when calculating the standard deviation applied in

8   this chart?

9   A   No.

10 Q   Okay. Let's go back to your full stack take rate

11 analysis. That was the last bar in the bar chart that we

12 had been looking at from your demonstrative.

13   And just to see if we agree on this, demand-side

14 platforms compete with demand-side platforms; correct?

15 A   Demand-side platforms can be substitutes or complements

16 for other demand-side platforms in some circumstances, but

17 yes.

18 Q   But no one could use a demand-side platform as an ad

19 exchange; correct?

20 A   Correct. You need both the demand-side platform and

21 the supply-side platform to undertake a transaction.

22 Q   So a demand-side platform when it's competing for

23 business is competing against other demand-side platforms?

24 A   More or less.

25 Q   Same thing for an ad exchange. It's competing against

66

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 1   other ad exchanges for customers' business?

 2   A    Yes.

 3   Q    And I think you described the units or combinations of

 4   buying tools and exchanges as paths or pathways; is that

 5   right?

 6   A    Yes.  I think that's the language I used.

 7   Q    Okay.  I'd like to pull up Figure 8 from your report,

 8   which is in your small white binder.  Thank you.

 9            MR. JUSTUS:  Sorry, which tab are we looking at?

10            MR. GUARNERA:  It is tab -- apologies.  It's

11   DTX 2064.

12            THE COURT:  All right.  Defense Exhibit 2064.

13            MR. GUARNERA:  Correct.

14            THE COURT:  All right.  I think that's in or

15   something like that has been in.

16            Do you want this moved in?

17            MR. GUARNERA:  We are not seeking to move it in at

18   this time.

19            THE COURT:  All right.

20   BY MR. GUARNERA:

21   Q    Professor Chevalier, this is the --

22   A    I'm sorry, where do I have the unredacted version of

23   this?

24   Q    It should be the second page in your white small

25   binder.
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67

1   A   Oh, this binder?

2   Q   Yes, I'm sorry.

3   So the Figure 8 from your report was separately

4   created as an exhibit.

5   A   Okay. And you said the second tab here?

6   Q   It is the tab that says DTX 2064.

7   A   Got it. Sorry.

8   Q   Apologies for that.

9   And you have the redacted version in front of you?

10   THE COURT: I don't think so. It's not in my

11   book. Just be careful as you talk about it. Don't mention

12   the names.

13   THE WITNESS: Okay. And I think the redacted was

14   on the screen, so I can work with that.

15   MR. GUARNERA: If we could put it on the screen,

16   that would be great. Apologies.

17   THE WITNESS: Okay. That's great. Thank you.

18   MR. GUARNERA: As I said, we're not seeking to

19   admit this into evidence.

20   THE COURT: All right.

21   BY MR. GUARNERA:

22   Q   Professor Chevalier, am I correct this is the full

23   stack revenue share by buying tool exchange combination data

24   that you were talking about on your direct?

25   A   Yes.

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1    Q    Okay.  We talked -- you talked on your direct about

2    that 36.1 percent competitors' full stack average, and

3    that's in line 19 of this chart?

4    A    Yes.

5    Q    Okay.  And this chart reflects where that 36.1 percent

6    number came from; right?

7    A    I think that's not fair, no.

8    Q    Okay.

9    A    I mean, because as I mentioned in my direct, there are

10   ad-buying tools and exchanges included in that competitors'

11   full stack average that aren't here listed because of these

12   data constraints that I described.

13   Q    And those other combinations, those other pathways are

14   or are not reflected in the 36.1 percent?

15   A    They are -- so the 36.1 percent is very simply

16   constructed with the weighted average revenue shares, same

17   as Professor Simcoe, so it includes all the same exchanges

18   as Professor Simcoe.  And then a weighted average revenue

19   share of all of the ad-buying tools which is similar to

20   something Professor Lee does.  And combined together.

21        So if a path is missing -- sorry, just am I

22   allowed to name a path that's missing because of data

23   constraints or should I anonymize that?

24        So like, for example, there would be data that we

25   don't -- that I didn't have the ad-buying tool data showing
```

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1   transactions to the exchange or the exchange showing

2   transactions to the ad-buying tool. Those aren't broken out

3   here if I don't have -- if I don't meet that data

4   requirement of being able to see the transactions flowing

5   over the path.

6   But the competitive full stack average is simply

7   constructed with all the ad-buying tool data and all the

8   supply side platform data, so that's -- a pathway that's

9   missing here is still in that weighted average.

10   Q   Okay. So am I right that there are over 85 different

11   pathways that you looked at in constructing this chart?

12   A   In the sense that there are a variety of conceivably

13   possible pathways of the ad-buying tools and the exchanges.

14   And then I required in order to include it here, that either

15   the ad-buying tool provided granular enough data that I

16   could see the specific transaction with the -- specific

17   transactions with the exchange, or the exchange was granular

18   enough that I could see specific transactions with the

19   ad-buying tool.

20   Q   Let me maybe hopefully short circuit some of this.

21   There are many buying tools that are not included

22   in this report; correct?

23   A   You mean the ones that we -- that we don't have data

24   for for the competitors' full stack average?

25   Q   Correct.

                                                        70

1   A   Right. But there are more in the full stack average

2   than are in these specific pathways due to the data

3   limitations I just described.

4   Q   Understood.

5   But there are many buying tools that are not

6   reflected in the competitors' full stack average because of

7   data constraints or otherwise?

8   A   There's certainly some, yeah.

9   Q   And same for exchanges?

10   A   There's certainly some.

11   So for example, you know, Professor Simcoe's full

12   stack average doesn't include --

13   Q   I'm just asking you about your -- what your data is

14   here, Professor Chevalier.

15   So the question is just some exchanges are not

16   included; correct?

17   A   Right. I'm just pointing out that the full stack

18   average is the same data as Professor Simcoe, and there's

19   some exchanges not included that neither of us have.

20   Q   Understood.

21   I notice that only one buying tool in this list --

22   let me --

23   Am I right, Professor Chevalier, that Google Ads

24   only appears in one row, row 27, of this figure?

25   A   Yes, that's correct.

                                                      71

1   Q   Is there any other -- and just to be clear, Google Ads

2   only connects to AdX in this figure; correct?

3   A   Yes. Actually -- yes.

4   Q   Is there any other buying tool in this list that only

5   connects to a single ad exchange?

6   A   Well, Google Ads to something else doesn't actually

7   meet my data criteria in which I can get into but it's the

8   weeds.

9   Q   My question is just does any other buying tool only

10 connect with a single ad exchange; yes or no?

11 A   The pathways I've listed?

12 Q   Correct.

13 A   I'd actually have to look them over because if the

14 exchange identified it and the ad-buying tool as a general

15 matter didn't, I would actually -- I would get some

16 singletons of that way.

17   So I can check, but if you represent to me that

18 there isn't, I'll believe you.

19 Q   I mean, you're welcome to look at the unredacted

20 version in your binder, but I don't see any other buying

21 tool that only connects to a single ad exchange.

22   Do you disagree?

23 A   I mean -- yeah, because that seems right.

24 Q   Because Google Ads exclusively bids into AdX except for

25 a few limited circumstances; right?

                                                    72

Cross-examination - J. Chevalier

```
 1   A     So Google Ads -- the majority of Google Ads

 2   transactions are through AdX, and I know there are other

 3   transactions.  I don't remember the share.

 4   Q     And no Google Ads to third-party exchange transactions

 5   are reflected in this chart; correct?

 6   A     Yes.  That's actually because it doesn't meet -- the

 7   particularities of the data don't meet the data inclusion

 8   criterion that I have in terms of the information.

 9   Q     So the answer is --

10   A     No.

11   Q     Okay.  And are you aware whether Google Ads collects a

12   higher take rate when it bids into third-party exchanges

13   than it does when it bids into AdX?

14   A     I am generally aware of that.

15   Q     But that's not reflected in this chart?

16   A     Right.  Given the damages origin of this chart --

17   Q     I'm sorry, Professor.

18   A     Okay, sorry.

19   Q     Yes or no?

20   A     No, it's not there.

21   Q     Okay.  And not all of the buying tools in this chart

22   offer comparable services; is that right?

23   A     Yeah, that's right.

24   Q     We talked before about how, for example, some are

25   demand-side platforms, some are advertiser ad networks;
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73

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 1   right?

 2   A    I think I didn't agree with that, but they certainly

 3   offer differentiated services.

 4   Q    Okay.  I'm looking at the first eight lines of your

 5   chart.  In other words, the eight lines that have the

 6   highest full stack take rates.

 7              And I noticed that company 5 is in seven of the

 8   top eight lines there; do you see that?

 9   A    I do.

10   Q    And maybe flip over and just remind yourself what

11   company that is.

12   A    Yes.

13   Q    Okay.  And at a high level, that buying tool offers a

14   specialized high value service; correct?

15   A    My understanding is the buying tools provide

16   differentiated services.

17   Q    And in particular, this one that reflects seven of the

18   top eight highest full stack take rates offers a more

19   expensive, higher value service than other buying tools on

20   this list; correct?

21   A    Sorry.  I --

22   Q    If you don't know, that's fine.

23   A    I mean, I'm not sure.

24   Q    Okay.

25   A    Or I'm not sure what you mean by high value, but it's
```
                                                              74

1   differentiated.

2   Q   It's differentiated from Google Ads, for example;

3   correct?

4   A   Yes.

5   Q   So comparing the take rate that company 5 charges to

6   the take rate that Google Ads charges is apples and oranges;

7   correct?

8   A   The same way that exchanges are apples and oranges.

9   They're differentiated, yes.

10   Q   And if you were to remove the -- again, seven of the

11   top eight highest full stack take rates from this list, that

12   would lower the competitors' full stack average; right?

13   That's just math; correct?

14   A   I'm sorry. Do you mean exclude that exchange entirely

15   from my --

16   Q   The buying tool.

17   A   If I were to exclude the highest revenue share buying

18   tool from the average, yes, the average would fall.

19   Q   Okay.

20   A   Yes.

21   Q   In this Figure 8, there's 34 different pathways;

22   correct? Because one is the competitor.

23   A   Yes. Yes.

24   Q   Okay. And there's no indication on this chart of the

25   number of impressions processed by any of these pathways;

75

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 1    correct?

 2    A     Not on this chart, no.

 3    Q     Okay.  Some of these pathways involve many fewer

 4    impressions than others; correct?

 5    A     Yes.

 6    Q     The Google Ads to AdX pathway has by far the most

 7    impressions of any pathway in Figure 8; is that right?

 8    A     I would have to double-check the relative shares of

 9    Google Ads to AdX and DV360 to AdX, but ...

10    Q     Okay.  Let's open PTX 1373 which is also in the small

11    white binder.

12             THE COURT:  Are you moving it in?

13             MR. GUARNERA:  We are moving this in, Your Honor.

14             THE COURT:  Any objection to 1373?

15             MR. JUSTUS:  One second.

16             THE COURT:  All right.  It's in.

17             MR. GUARNERA:  Sorry.  I think he asked for one

18    moment.

19             MR. JUSTUS:  No, Your Honor.

20             THE COURT:  All right.  It's in.

21      (Plaintiffs' Exhibit Number 1373 admitted into evidence.)

22    BY MR. GUARNERA:

23    Q     And Professor Chevalier, this is a figure from

24    Professor Simcoe's rebuttal report.

25             Do you recognize it?
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 1   A    Yes.

 2   Q    Okay.  And you reviewed Professor Simcoe's rebuttal

 3   report?

 4   A    Yes.

 5   Q    Okay.  It's titled:  Professor Chevalier's full stack

 6   take rate versus average monthly impressions by pathway

 7   worldwide impressions; correct?

 8   A    Right.

 9   Q    And in this figure the vertical Y axis shows the full

10   stack take rates that you calculated in your Figure 8 that

11   we were just looking at; right?

12   A    Correct.

13   Q    And then on the horizontal X axis, that shows the

14   number of monthly impressions in billions transacted through

15   the pathway in your Figure 8; right?

16   A    Right.

17   Q    Okay.  And so the blue dots are the pathways that

18   involve at least one non-Google exchange or buying tool;

19   correct?

20   A    It sounds right.

21   Q    Okay.  And the red dot, a bit to the right of the --

22   sorry, in between 100 and 150 billion impressions, that's

23   DV360 to AdX?

24   A    Correct.

25   Q    And then there's further to the right between 300 and
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                                                          77

 1   350, there's the Google Ads to AdX pathway?

 2   A   Yep.

 3   Q   And so it's about 13 times -- there are about 13 times

 4   more transactions through Google Ads AdX than the highest

 5   pathway with a non-Google participant?

 6   A   That's a little more math than I can do, but I believe

 7   you.

 8   Q   Roughly. Okay.

 9   A   Roughly.

10   MR. GUARNERA: I'd like to now introduce PTX 1362.

11   THE COURT: Any objection?

12   MR. JUSTUS: One second, Your Honor.

13   MR. GUARNERA: This is the first one.

14   THE COURT: It looks like is this also from

15   Simcoe's report?

16   MR. GUARNERA: This is from Simcoe's report. This

17   is a chart of the United States data and the one we were

18   just looking at is worldwide data.

19   THE COURT: Any objection?

20   MR. JUSTUS: No objection, Your Honor.

21   I would just note, is it labeled in some way?

22   THE COURT: It's 1362.

23   MR. JUSTUS: Oh, I just meant to point out United

24   States versus worldwide. It's very confusing the way it's

25   labeled.

```
 1              THE COURT:  That is true.  This one is for --

 2              MR. GUARNERA:  It says at the bottom, analysis

 3   includes U.S. impressions.

 4              THE COURT:  All right.

 5              MR. JUSTUS:  No objection, Your Honor.

 6              THE COURT:  All right.  It's in.

 7    (Plaintiffs' Exhibit Number 1362 admitted into evidence.)

 8   BY MR. GUARNERA:

 9   Q    And again, Professor Chevalier, this chart or this

10   figure is structured similarly to the one we just looked at;

11   right?

12   A    Yes.

13   Q    And it shows -- I won't make anyone do math but many,

14   many times more transactions through DV360 to AdX and Google

15   Ads to AdX than any other pathway in your Figure 8 that we

16   were looking at; correct?

17   A    Yes.

18   Q    Okay.  As part of your report, you didn't specifically

19   study the role that scale plays in ad exchange markets;

20   correct?

21   A    No, I did not.

22   Q    You didn't specifically study the roles that scale

23   plays in targeting of ads?

24   A    I did not.

25   Q    And you didn't specifically study the relationship
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 1    between scale and the quality of an ad exchange?

 2    A    I did not.

 3    Q    And you didn't specifically study the role that bidding

 4    data plays in ad exchange markets?

 5    A    I did not.

 6    Q    Okay.

 7              MR. GUARNERA:  We can pull down that exhibit.

 8    Thank you.

 9    BY MR. GUARNERA:

10    Q    I'd like to turn now to the event study demonstrative

11    that you showed during your direct.  I think that was Tab 8

12    of your binder.

13              And we were just talking about Professor Simcoe's

14    comparables analysis, and this here is we're moving now to

15    Professor Simcoe's event study; correct?

16    A    Correct.

17    Q    Okay.  And his event study ultimately found that the

18    competitive take rate for ad exchanges was between 15.7 and

19    16.6; is that correct, based on his event study?

20    A    Based on his analysis in that study, yes.

21    Q    So the left-most bar in this demonstrative, again it

22    shows that there is an implied overcharge; correct?

23    A    Yes.

24    Q    And the next bar to the right also again shows an

25    implied overcharge; correct?
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Cross-examination - J. Chevalier

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 1   A    Yes.

 2   Q    And as you said, both of these reports actually come

 3   from -- both of these -- the numbers in these two bars come

 4   from Professor Simcoe's own robustness checks in his report;

 5   correct?

 6   A    Correct.

 7   Q    In fact, Professor Simcoe did 216 different

 8   combinations of -- he ran 216 different versions of his

 9   regression using different inputs; is that right?

10   A    I didn't count them up, but sure.

11   Q    Okay.  And let's actually open Professor Simcoe's

12   rebuttal report to Figure 8, and that is on page 56.

13   A    Sorry.  Page 56?

14   Q    I believe so.

15        And this Figure 8 in his report, this reflects the

16   results that he got from his 216 modifications of the

17   benchmark event study regression; is that right?

18   A    Yes.

19   Q    And none the results that he got from this -- from

20   his 216 modifications show a but-for take rate higher than

21   18 percent; is that right?

22   A    Right.

23   Q    Every one of those 216 regressions showed a take rate

24   of -- a but-for take rate of 18 percent or less; correct?

25   A    Correct.
```

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Cross-examination - J. Chevalier

```
 1   Q    I'd like to move now to the right two bars in your
 2   demonstrative.
 3            So these reflect your view that the event study
 4   should measure the effective UPR on AdX's revenues rather
 5   than AdX's impressions; correct?
 6   A    That's not quite right.
 7   Q    You criticize Professor Simcoe for measuring the effect
 8   of UPR on impressions rather than revenues; correct?
 9   A    I criticized Professor Simcoe's event study in general,
10   but I criticize it for not looking at revenues and net
11   revenues.
12   Q    Right.  I mean, these two bars are both measuring the
13   effect of UPR on -- or the event study on revenue, right,
14   gross revenue in the third bar, net revenue in the fourth
15   bar; correct?
16   A    Yes.
17   Q    And Professor Simcoe, his event study analysis focused
18   on changes in impressions; correct?
19   A    Right.  He only looked at impressions in his initial
20   report.
21   Q    Do you agree that revenue -- gross revenue equals price
22   times quantity?
23   A    Yes.
24   Q    Okay.  With respect to quantity, UPR enabled AdX to win
25   more impressions; right?
```

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Cross-examination - J. Chevalier

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 1   A    Well, again, not UPR per se, but under Professor

 2   Simcoe's construction, he concludes that.

 3   Q    Is that a yes?

 4   A    Well, it's a no.

 5   Q    Okay.

 6   A    Sorry, my fault.

 7        I don't agree that we have seen evidence that UPR

 8   allows AdX to win more impressions.  And so your question

 9   asked me UPR allows AdX to win more impressions, the answer

10   is no.

11   Q    Sorry, I just want to make sure I heard you correctly.

12        You have not seen evidence that UPR allowed AdX to

13   win more impressions?

14   A    I have seen -- I have seen -- I have seen evidence that

15   is not clear on that point, and it's not separated in

16   Professor Simcoe's event study.

17   Q    But you have seen some evidence that UPR enabled AdX to

18   win more impressions; correct?

19   A    I have not seen a study after the full implementation

20   of UPR that shows that, no.

21   Q    Okay.  If UPR lowers the price floor for AdX, that

22   would tend to increase the number of impressions won by AdX;

23   does that sound correct to you?

24   A    Other things being equal, yes.

25   Q    Other things being equal, okay.
```

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1   So the quantity of impressions that AdX wins would

2   go up after September 2019 if in fact UPR resulted in lower

3   price floors for AdX; correct?

4   A   Well, again, now you're talking about what happens to

5   impressions in a specific period of time when a lot of

6   things changed.

7   So if -- if you can tighten your hypothetical, I

8   might be able to agree with you. But I -- no.

9   Q   Let's take UPR on its own terms.

10   A   Uh-huh.

11   Q   There used to be the ability in DFP for publishers to

12   set their own price floors; correct?

13   A   Yes.

14   Q   And UPR removed that ability from publishers; correct?

15   A   Sorry. I'm sorry. You misspoke I think.

16   You said prior to the 2019 changes publishers were

17   allowed to set their own price floors and now they're not?

18   And I think you didn't mean that because, of course,

19   publishers can set their own price floors. I think you

20   meant exchange specific?

21   Q   Well, I meant whether -- let me ask a question.

22   Do you believe that UPR prevented publishers from

23   setting variable price floors by exchange?

24   A   Yes.

25   Q   Okay. And that ability was terminated in September '19

                                                                84

1   for publishers using DFP?

2   A   Right.

3   Q   And so after September 2019, AdX bid into auctions with

4   lower price floors than it did before UPR?

5   A   Again, I don't know how you can conclude that given

6   that the UPR change was simultaneous with other changes.

7   Q   But again, you've seen evidence that AdX did --

8   MR. JUSTUS: Objection, Your Honor. Asked and

9   answered.

10   THE COURT: There's no question yet.

11   MR. GUARNERA: I haven't finished the question.

12   BY MR. GUARNERA:

13   Q   Would you expect, Professor Chevalier, that if UPR

14   lowered the price floors that AdX was bidding -- on auctions

15   where AdX was -- on impressions where AdX was bidding, that

16   AdX would win more impressions than prior to UPR?

17   MR. JUSTUS: Same objection.

18   THE COURT: I'll sustain that objection.

19   BY MR. GUARNERA:

20   Q   Have you seen evidence that prior to the imposition of

21   UPR, publishers would floor AdX higher than other exchanges?

22   A   My understanding is that on average, that's true.

23   Q   And therefore, after UPR, would you expect that AdX

24   would have the opportunity to bid on impressions with lower

25   price floors than it did prior to UPR?

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Cross-examination - J. Chevalier

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 1   A     Possibly.

 2   Q     For example, if AdX were the only bidder on an

 3   impression and there was an AdX specific price floor of $5

 4   before UPR and $1 after UPR, AdX could now win that

 5   impression for $1 after UPR; correct?

 6              MR. JUSTUS:  Same objection, Your Honor.

 7              THE COURT:  Well, no.  This is more specific.  I'm

 8   going to overrule that objection.

 9              THE WITNESS:  Yes.  If -- in the hypothetical

10   you've constructed, yes.

11   BY MR. GUARNERA:

12   Q     Okay.  And for that same reason, would you expect that

13   the average cost per impression for AdX would go down after

14   UPR because AdX can win impressions at lower price floors?

15   A     So again, in the hypothetical you constructed, yes.

16   Q     And AdX's take rate is a percentage of the cost of the

17   impressions that it wins; correct?

18   A     Yes.

19   Q     So you would expect that if AdX was floored lower after

20   September 2019, that would lower AdX's average revenue per

21   impression; correct?

22   A     Yes.  So if more transactions are enabled, they would

23   be on average lower CPM.  Yes.

24   Q     Were you in court when The Daily Mail witness

25   testified?
```

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1 A   I was not.

2 Q   Okay. Going book to our revenue equals price times

3 quantity formula, I think we've said that because of UPR,

4 one would expect that the quantity of impressions won by AdX

5 would increase; correct?

6 A   If UPR has the effects of your hypothetical, yes.

7 Q   And we would expect that the average CPM, the average

8 cost of the impressions that AdX wins, would go down after

9 UPR; correct?

10 A   In your hypothetical, on average, yes.

11 Q   Okay. And so price is going down and the quantity is

12 going up; correct?

13 A   Yes.

14 Q   Okay.

15 A   In your hypothetical.

16 Q   And if quantity goes up as a result of UPR and average

17 revenue per impression goes down, would it understate the

18 impact if an event study focused on the effective

19 revenues -- focused on the effective revenues?

20 A   Sorry, could you repeat that?

21 Q   Sure. If quantity goes up as a result of UPR and the

22 average per impression cost goes down, would it understate

23 the impact of the event study on AdX?

24 A   It would show the -- again, in the hypothetical we're

25 isolating PR, it would show the effect on revenues.

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Cross-examination - J. Chevalier

```
 1   Q    It would show an effect on revenues but the revenue

 2   change would be modulated by the fact that quantity is going

 3   up and price is going down; correct?

 4   A    I'm sorry, I don't know what you mean by modulated.  I

 5   mean, the -- you would see the impact on revenues and I

 6   said -- and I'm showing the impact on revenues.

 7   Q    I think you testified on your direct that you think

 8   that publishers viewed or could have viewed UPR as a

 9   positive product change in DFP; is that correct?

10   A    Certainly some publishers viewed it negatively, but,

11   yes, some publishers viewed it positively.

12   Q    But you didn't interview any actual publishers in

13   preparing your report?

14   A    I did not.

15   Q    And you didn't do any survey of publishers' views on

16   UPR?

17   A    I used -- I referenced a publisher survey on UPR but I

18   did not conduct one.

19   Q    And what publisher survey is that?

20   A    One of the pieces of evidence about UPR that I

21   described was the advertiser perception survey.

22   Q    And did you rely on that survey in forming your

23   opinions?

24   A    It was part of a variety of data that I looked at to

25   suggest that UPRs were not universally or overwhelmingly
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Cross-examination - J. Chevalier

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 1  disliked by publishers.

 2  Q    Were you in court when any publisher witnesses

 3  testified live about their views on UPR?

 4  A    Was I physically in court?  No, but I did review -- I

 5  looked at some transcripts.

 6  Q    Have you looked at transcripts about publishers' views

 7  on UPR?

 8  A    I've briefly reviewed, but I've looked more at

 9  deposition testimony and other documents.

10  Q    In establishing publishers -- your understanding of

11  publishers' views of UPR, did you look at any data other

12  than the advertiser perception survey?

13  A    So I looked at numerous things, documents, depends on

14  what you mean by data.  So I looked at numerous documents.

15  Q    And what are those documents?

16  A    So they're cited in my report.

17  Q    Is there anything that's not cited in your report that

18  you relied on?

19  A    I think -- I reviewed a number of things, but the

20  documents relied on in my report are the documents relied

21  on.

22  Q    Okay.  Have you heard any of the recording that was

23  played in court of a meeting in which Google announced UPR

24  to its publisher customers?

25  A    I did not hear that recording, no.
```

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Cross-examination - J. Chevalier

```
 1   Q     Are you aware of evidence that publishers used price

 2   floors to avoid low-quality ads appearing on their sites?

 3   A     I have read through the documents that I have read

 4   numerous reasons why publishers use floors.

 5   Q     Is that a yes or a no to my question?

 6   A     So that publishers use floors to remove low-quality

 7   ads.

 8   Q     Correct.

 9   A     Yes.

10   Q     And are you aware of evidence that publishers used

11   price floors to qualify for volume discounts with certain

12   advertisers?

13   A     I have seen some discussion of that in the documents.

14   Q     Are you aware of evidence that publishers used price

15   floors to reduce their dependence on Google?

16   A     I have seen some discussion of that in the documents.

17   Q     As an economist, would you agree that there are

18   legitimate reasons that a customer might want to reduce its

19   dependence on a single supplier?

20   A     In some circumstances, yes.

21   Q     As an economist, would you agree that it's reasonable

22   for publishers to want to set prices for their own

23   inventory?

24   A     Sorry, could you say that again?

25   Q     As an economist, would you agree that it is reasonable
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Cross-examination - J. Chevalier

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 1    for publishers to want to set prices for their own

 2    inventory?

 3    A     Yes.

 4    Q     Before Google imposed UPR, there was never a

 5    requirement that a publisher had to set multiple price

 6    floors in DFP; correct?

 7    A     No.

 8    Q     The default in DFP was that a price floor applied to

 9    all demand sources; correct?

10    A     That's my understanding.

11    Q     Before UPR, a publisher had to manually adjust multiple

12    price floors if it wanted multiple price floors; correct?

13    A     It's my understanding.

14    Q     So only those publishers that wanted to use different

15    price floors used them?

16    A     I would think that's true, yes.

17    Q     For a publisher that did not want to have multiple

18    price floors, UPR had no effect on that publisher; correct?

19    A     Sorry.  For a publisher who --

20    Q     Did not want to use multiple price floors, the UPR

21    policy change had no effect on that publisher?

22    A     Oh, that's not true.  Incorrect.

23    Q     With respect to that publisher's use of price floors,

24    you believe UPR had an effect on that publisher?

25    A     Yes.  As I describe in my -- as I mentioned in my
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Cross-examination - J. Chevalier

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 1   report, if other publishers are using certain pricing tools

 2   like variable floors, that makes it more important that a

 3   given publisher do so.

 4             So if no publishers are allowed -- if no

 5   publishers are using that particular type of variable floor,

 6   I don't think we can say whether an individual publisher is

 7   benefiting or not given the environment has changed.

 8   Q    But no publisher who wanted to use a single price floor

 9   prior to UPR was forced to do otherwise before UPR; correct?

10   A    Right.  But as I just described, when the environment

11   changes, that changes the cost and benefits of using

12   variable price floors.  So no, they weren't forced to.

13   Q    They could choose to use multiple price floors before

14   UPR; correct?

15   A    They could choose to use multiple exchange specific

16   price floors before UPR.

17   Q    And after UPR, publishers could not use exchange

18   specific price floors; correct?

19   A    That's my understanding.

20   Q    Okay.  And the unified -- uniform pricing rule change

21   was -- occurred within the DFP publisher ad server; correct?

22   A    Yes.

23   Q    And publisher ad servers are tools that serve

24   publishers; correct?

25   A    Yes.
```

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Cross-examination - J. Chevalier

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 1   Q    They're sold to publishers?

 2   A    Yes.

 3   Q    You haven't seen evidence of publishers switching to

 4   DFP because they specifically wanted to use an ad server

 5   with Uniform Pricing Rules; have you?

 6   A    I have not seen evidence specific to that, no.

 7   Q    Have you seen -- you have seen no evidence that the

 8   increase in impressions in AdX after September 2019 was

 9   because new publishers switched to DFP because they valued

10   Uniform Pricing Rules; correct?

11   A    So again, my analysis absolutely doesn't require that.

12   My analysis --

13   Q    My question is just yes or no, have you seen evidence?

14   A    Have I seen evidence that they have switched

15   specifically, no.

16   Q    Okay.  Do you agree that there can be important

17   competitive effects from a shift in impressions between ad

18   exchanges?

19   A    What do you mean by important competitive effects?

20   Q    Let me reask the question.

21        Holding revenue constant, could there be effects

22   on competition from a shift in impressions between ad

23   exchanges?

24   A    I guess it's possible.

25   Q    Scale could enable an exchange to have access to better
```

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1   data; correct?

2   A   In theory.

3   Q   Broader access to inventory is another benefit that

4   would come to an exchange from having more scale?

5   MR. JUSTUS: Your Honor, after several questions

6   on this, this is pretty far afield from what Professor

7   Chevalier testified about on direct and also what's in her

8   report.

9   THE COURT: Yeah, I agree with that.

10   Let's move this along.

11   MR. GUARNERA: We can move on.

12   BY MR. GUARNERA:

13   Q   Professor Chevalier, I'd like to ask a few questions

14   now about apportionment.

15   A   Okay.

16   Q   Professor Simcoe found that publishers bear 70 to

17   80 percent of an AdX overcharge; right?

18   A   Right. That's what he found, yep.

19   Q   And advertisers bear 20 to 30 percent?

20   A   Yes.

21   Q   And a tax incidence model uses the price sensitivity of

22   buyers and sellers to apportion which side of a transaction

23   bears a tax?

24   A   Yes.

25   Q   And you used the tax incidence framework yourself to

94

1   calculate the share of an overcharge that would be borne by

2   advertisers in various scenarios; correct?

3   A   I'm sorry, I'm not sure exactly what you mean. Do you

4   mean in my report?

5   Q   Yes.

6   A   Ah. So in my report, I provide adjustments to

7   Professor Simcoe's use of the tax incidence model, which I

8   didn't get into in my direct because they are kind of

9   germane to damages, but I didn't adopt his model.

10   Q   I'm sorry. You did adopt his model?

11   A   I used his model to illustrate changes to it, as

12   perhaps we did with the other two models that we talked

13   about. I did that in my report, yes, but I also offered

14   critiques of Professor Simcoe's analysis more generally.

15   Q   Understood.

16   I'd like to turn now to Figure 30 in your report,

17   which is not an exhibit, it's in the back of your binder.

18   It says Figure 30 Chevalier report.

19   A   Sorry. Which binder?

20   Q   Sorry. The small white binder.

21   A   Which small white binder? Yours?

22   Q   Yes.

23   THE COURT: Way to the back.

24   THE WITNESS: Okay, thank you. Sorry.

25   MR. GUARNERA: And Your Honor, defendants -- or

                                                              95

 1 defendant labeled I think 35 of Professor Chevalier's

 2 figures and exhibits as exhibits on their exhibit list.

 3 They did not include this one. We would move it into

 4 evidence as PTX 1860.

 5   THE COURT: 1860. All right.

 6   Any objection?

 7   MR. JUSTUS: No, Your Honor.

 8   THE COURT: All right. It's in.

 9   (Plaintiffs' Exhibit Number 1860 admitted into evidence.)

10 BY MR. GUARNERA:

11 Q   And Professor Chevalier, this is from your report;

12 correct?

13 A   Yes.

14 Q   And the title of this figure is, Advertiser overcharge

15 share associated with 6.1 percent price increase; correct?

16 A   Yes.

17 Q   And this is looking at, at a high level, the percent of

18 an overcharge that each individual advertiser ID in Google's

19 data set would bear; correct?

20 A   Using Professor Simcoe's analysis, at the advertiser

21 level, what percentage the advertiser would bear in the set

22 of auctions that particular advertiser participates in.

23 Q   Okay. And under a tax incidence model, individual

24 buyers who are more sensitive to changes in price will bear

25 less of the overcharge; do I have that right?

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1   A   That's a relative statement. So in a buyer/seller

2   pair, the less -- the entity with the lower elasticity will

3   bear more of a tax.

4   Q   And this Figure 30 is showing that advertisers have

5   somewhat different elasticities; correct?

6   A   This figure shows that using his methodology,

7   individual advertisers in the data have a wide range of

8   estimated elasticities, yes.

9   Q   And the median overcharge that falls in advertisers in

10   your calculation in Figure 30 is 18.3 percent?

11   A   Yes.

12   Q   And Professor Simcoe had calculated it using the same

13   specifications, he calculated the average overcharge on

14   advertisers as 19.3 percent?

15   A   Yes.

16   Q   And the lowest value on the X axis here is a

17   2.5 percent overcharge; is that right?

18   A   I think it's not a 2.5 percent overcharge. I think

19   it's an overcharge share, is that what you mean?

20   Q   Yes.

21   A   That looks -- oh, I can't expand on here.

22   Yeah, okay. It looks about right.

23   Q   It's fair to say that virtually every advertiser has an

24   overcharge share of 2.5 percent or above; correct?

25   MR. JUSTUS: Your Honor, this is both outside the

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1   scope of the direct and also I think pretty irrelevant to

2   the case as it currently stands.

3   MR. GUARNERA: Your Honor, she testified about

4   apportionments on her --

5   THE COURT: I'm going to overrule the objection.

6   THE WITNESS: Okay. Sure. Yes.

7   So the advertisers that I'm looking at here,

8   holding the publisher overcharge share fixed -- I'm sorry.

9   Holding the publisher elasticity fixed in this

10   experiment, the advertiser share would move from -- holding

11   the publisher share fixed at the average that Professor

12   Simcoe calculated, the advertiser's share would range from

13   two-and-a-half percent to 100 percent using his

14   calculations.

15   BY MR. GUARNERA:

16   Q   And the share that would fall on publishers in any

17   given -- for any given advertiser here is just one minus the

18   percentage that falls on advertisers?

19   A   Yes, with a caveat.

20   Q   Okay. What is that caveat?

21   A   So in my report, because we're focusing on the FAAs and

22   the purpose of this is to show that Professor Simcoe's

23   representative advertiser model is not necessarily

24   appropriate to the FAAs, I show a range of advertiser shares

25   holding the publisher elasticity estimate fixed.

                                                            98

1   I then in my report remark that I could similarly

2   do the same exercise where I take individual publisher IDs

3   and estimate a range of publisher elasticities, so

4   publisher -- so it's the -- what matters is just the

5   publisher advertiser relative.

6   And so I just -- this is holding the publisher

7   piece fixed -- the publisher elasticity fixed at Professor

8   Simcoe's average. This is the range you would see. Yes.

9   I just -- I didn't think your question actually

10   hit that, so I'm sorry if I overexplained.

11   Q   Not a problem at all.

12   But the point is that according to this figure,

13   advertisers bear some positive amount of the overcharge;

14   correct?

15   A   Oh, yes, of course.

16   Q   And publishers also bear some positive amount of the

17   overcharge?

18   A   That's surely true as a matter of theory, though, you

19   know, there is a piece here that using Professor Simcoe's

20   methodology in this way, you can see that there's a fair bit

21   of the data that would imply 100 percent advertiser burden.

22   But I think in my report I sort of describe that

23   as a critique of his methodology that it gets that result as

24   opposed to a statement on my part that advertisers would

25   bear 100 percent of the burden.

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 1              So typically, any -- there would be a sharing.

 2   Q    And you think there was a sharing between advertisers

 3   and publishers for any AdX overcharge, if there is an AdX

 4   overcharge; correct?

 5   A    So there would be a sharing of -- there's a sharing of

 6   any overcharge in the full stack.

 7   Q    Okay.  And just to clarify, Professor Chevalier, a

 8   sharing of the AdX overcharge between publishers and

 9   advertisers in the full stack?

10   A    Well, there's a long discussion in my report about --

11   Q    I mean, let me --

12              THE COURT:  You have to listen -- just listen to

13   the question, please.

14              THE WITNESS:  Okay, sorry.

15   BY MR. GUARNERA:

16   Q    I'm just trying to clarify that the overcharge that you

17   just mentioned is the AdX overcharge?

18   A    Oh, I'm sorry.  Yes.

19              MR. GUARNERA:  Thank you.

20              THE COURT:  Is there any redirect?

21              MR. JUSTUS:  Yeah.  I'll try to keep it brief,

22   Your Honor.

23                        REDIRECT EXAMINATION

24   BY MR. JUSTUS:

25   Q    Can we start by bringing back up Tab 3, which is
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1   DTX 2069.

2   MR. JUSTUS: And remember, we're flashing up the

3   sealed version -- I mean, we're flashing up -- right. Thank

4   you.

5   BY MR. JUSTUS:

6   Q   So on direct -- on cross, you were asked about

7   strategic complements; do you remember that?

8   A   Yes.

9   Q   Do you see on this chart company -- the yellow bar,

10 company 11?

11 A   Yes.

12 Q   And where is company 11 on this chart? Is it high or

13 is it low? Where is it?

14 A   Company 11 is definitely the lowest, throughout the

15 whole time period, lowest revenue share.

16   MR. JUSTUS: And Your Honor has the name of

17 company 11 in front of her.

18 BY MR. JUSTUS:

19 Q   You were also asked about ad publisher -- sorry.

20   You were asked about publisher ad server fees on

21 cross; do you remember that?

22 A   Yes.

23 Q   Are you aware that Google charges approximately

24 1 percent for publisher ad server fees?

25   MR. GUARNERA: Objection, Your Honor. She said

                                                      101

 1   she didn't include publisher ad server fees in her full

 2   stack take rate.

 3   MR. JUSTUS: Right. So the point of this

 4   question, of course, is to explain why she didn't include

 5   them.

 6   THE COURT: All right.

 7   BY MR. JUSTUS:

 8   Q   Why didn't you include publisher ad server fees in your

 9   full stack take rate?

10   A   I think the reason I think neither Professor Simcoe nor

11   I included it in our full stack take rates is because

12   publisher ad server fees are, first of all, they're

13   typically not charges to rate; they're charged as a per

14   unit, and so they are -- I talked about the full stack take

15   rate, and it's not technically part of the full stack take

16   rate.

17   I think that's why neither I nor Professor Simcoe

18   included them for one reason. The other is they are

19   actually typically quite low in general is my understanding.

20   Q   Okay. Professor Chevalier, you were also asked about

21   UPRs and evidence you had reviewed concerning UPRs.

22   Are you aware of that?

23   A   I am.

24   Q   Okay. So if you give me a second but get your report

25   in front of you, it's in the big white binder.

                                                              102

1   A   Okay. One second.

2   Q   And in your report, we're going to manage a sealing

3   issue on this. If you can turn to paragraph 104 and 105 in

4   your report.

5   MR. JUSTUS: And Your Honor, it's the big white

6   binder you have.

7   THE COURT: I have it.

8   MR. JUSTUS: It's page 67.

9   BY MR. JUSTUS:

10 Q   Professor Chevalier, do paragraphs 104 and 105 reflect

11 some of the evidence, your view concerning UPRs?

12 A   Yes.

13 Q   And in general what did that evidence show?

14 A   So that evidence showed that some publishers expressed

15 concern and some are named here, I won't read names, and

16 then multiple publishers expressed positive feedback. And I

17 cite in 105 some deposition testimony in which a publisher

18 expresses positive feedback, says they like UPRs.

19   And I believe the cite in the -- in this -- these

20 sections points to this tracker -- one of the documents I

21 spent time with was a tracker that Google had used

22 internally in which various large publishers were marked as

23 whether or not they were positive about UPR, and I saw a big

24 range.

25 Q   So what happens, Professor, to Professor Simcoe's event

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Stephanie Austin, RPR, CRR USDC/EDVA (607) 743-1894

1   study if some publishers like UPRs?

2   A   So this is very problematic for Professor Simcoe's

3   event study because he is using the increase in impressions

4   following UPR as an indicator of the strength where the take

5   rate effect of the alleged anticompetitive ties. It's not

6   actually to be interpreted as the effect of UPR -- an

7   anticompetitive effect of UPR. He's linking it to the

8   effect of the ties.

9   And if some publishers like UPRs, if there's then

10 the idea that AdX has to, you know, lower its take rates in

11 order to implement UPRs which is his central assumption,

12 that fails. Right.

13   So his analysis really requires that publishers

14 overwhelmingly dislike UPRs.

15   My analysis, certainly some publishers don't like

16 UPRs, but if some do, that's a problem for his analysis but

17 fine for mine.

18 Q   And what do you mean it's a problem for his analysis?

19 A   It's a problem for his analysis because, again, he's

20 trying to estimate how much the take rate has to be lowered

21 to compensate publishers for UPRs.

22   But if some publishers like UPRs, then the bump in

23 impression that AdX achieves following the implementation of

24 UPRs and UFPA can't be interpreted as the impact of those

25 anticompetitive ties.

1   Q   Do you recall being asked on cross about Professor

2   Simcoe's calculation of a standard deviation?

3   A   Yes.

4   Q   And do you recall testifying that his standard

5   deviation calculated was almost zero the way he calculated

6   it?

7   A   Yes.

8   Q   What's wrong with the way that Professor Simcoe

9   calculated his standard deviation?

10   A   So Professor Simcoe's calculation was -- the

11   calculation he put in his surrebuttal was effectively

12   treating each transaction as a data point, right, so there's

13   billions of data points.

14   In fact, for some of these exchanges we don't even

15   have data on the individual transactions. And in fact, as

16   Professor Simcoe notes in his report, many of the -- he even

17   characterizes the monthly variation in take rates as due to

18   idiosyncratic factors and mostly unimportant.

19   So the exchange average is really the object of

20   interest here. He uses the overall average, but the

21   exchange average is the object of interest here. And

22   whether it's coming from, you know, lots of transactions or

23   not, it's still the take rate that the exchange is taking.

24   He's really not ever in his report truly looking

25   at billions of transactions. You know, he's -- he's looking

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Stephanie Austin, RPR, CRR USDC/EDVA (607) 743-1894

Redirect examination - J. Chevalier

1   at averages for exchanges.

2   Q   So why are exchange specific take rates the object of

3   interest for the standard deviation?

4   A   So the exchange specific take rates are the object of

5   interest because Professor Simcoe is claiming that Google

6   is -- that AdX, you know, is higher than the other

7   exchanges. That's fundamentally what his comparables

8   approach is showing.

9   And so I'm taking a -- I am looking at the other

10   exchanges, cutting the data as he uses it over this time

11   period and asking, you know, is Google an outlier.

12   MR. JUSTUS: Can we bring back up Figure 8, if we

13   can get some help from the government on that. Oh, I'm

14   sorry, the other Figure 8. Someone will magically make it

15   pop up. There we go.

16   BY MR. JUSTUS:

17   Q   Do you recall seeing this figure during your

18   cross-examination?

19   A   Yes.

20   Q   So first, where are the Google Ads -- sorry.

21   Where are the Google take rates on this chart?

22   A   Actually, they're not on my screen anymore because

23   they're not scrolled to.

24   Yes, so the Google Ads -- sorry, the Google Ads

25   take rate?

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Stephanie Austin, RPR, CRR USDC/EDVA (607) 743-1894

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 1    Q    Yes.

 2    A    So the way that Google Ads data is produced, actually

 3    the Google Ads to AdX only like what we get is a single take

 4    rate, and that's this 29.6.

 5    Q    Okay.  And then where is the DV360 AdX take rate

 6    located on this chart?

 7    A    So again, it's a little bit lower there, and again it's

 8    near the bottom of the chart.

 9    Q    And both those are below the competitors' full stack

10    averages?

11    A    Yes.

12    Q    And how did you -- what data did you use to calculate

13    the competitors' full stack averages?  Is it just limited to

14    the data shown on this figure?

15    A    No.  So I could get into the weeds but the figure

16    requires a lot of data on a specific path transactions being

17    observed.  The competitors' full stack average is taking the

18    weighted average of ad-buying tools for which we have data,

19    and then the weighted average of exchange take rates which

20    is identical to Professor Simcoe's, and compounding them.

21    Q    During cross, counsel asked you about differentiation

22    between and among ad tech tools; right?

23    A    Yes.

24    Q    Did Professor Simcoe do anything to account for

25    differences between exchanges in either his comparables
```

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Stephanie Austin, RPR, CRR USDC/EDVA (607) 743-1894

1   analysis or his event study?

2   A   He did not look at quality or try to look at different

3   characteristics of, you know, their inventory or anything

4   like that, no.

5   Q   Okay. Do you recall being asked about -- a long

6   hypothetical concerning the various ways price floors might

7   be implemented?

8   A   Yes.

9   Q   And so do you remember being asked to take as one

10   assumption AdX is the only bidder?

11   A   Yes. That was -- the whole hypothetical had that,

12   yeah.

13   Q   And do you recall being asked if there's -- to assume

14   there's only UPR and no other auction changes?

15   A   Yes.

16   Q   And then do you recall being asked to assume then that

17   there's a bid based on a lowered floor?

18   A   Yes.

19   Q   And then to assume then that AdX would win more

20   impressions; right?

21   A   Well, in the hypothetical where AdX was only the

22   bidder, yes, they would win more impressions because the

23   floor is lower, yeah.

24   Q   Does this align with your understanding of the real

25   world?

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 1   A     No.

 2   Q     Why not?

 3   A     Well, of course, typically AdX wouldn't be the only

 4   bidder, and the -- you know, there will be a competition

 5   among exchanges.  And the publishers wouldn't -- I think a

 6   very odd thing in the hypothetical is that if the publisher

 7   were setting a floor, they could set a floor for the

 8   auction.  If AdX were the only bidder, they don't have to

 9   set an AdX specific floor, but it's -- it is a very narrow

10   hypothetical.

11              MR. JUSTUS:  I'll pass the witness.

12              THE COURT:  All right.

13              Is there any recross?

14              MR. GUARNERA:  No, Your Honor.

15              THE COURT:  All right.  Then thank you, Professor.

16   You're free to leave.

17              I assume no one's going to call Professor

18   Chevalier again.

19              MS. DUNN:  I think it depends if Dr. Simcoe comes

20   back, which we don't yet know.  Otherwise, she can be

21   excused if we know that he's not coming.

22              THE COURT:  Are you planning to put him in your

23   rebuttal case?

24              MS. WOOD:  Your Honor, we haven't made final

25   decisions about who we're calling in rebuttal.
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Stephanie Austin, RPR, CRR USDC/EDVA (607) 743-1894

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1              THE COURT:  All right.  We'll leave this sort of

2    open.  That means at this point -- well, you're an expert,

3    so you can stay in court.  But just don't discuss your

4    testimony with any witness who has not yet testified.

5              THE WITNESS:  I'm sorry, I didn't quite hear that

6    last bit.

7              THE COURT:  Do not discuss your testimony with any

8    witness who has not yet testified.

9              THE WITNESS:  Okay.

10             THE COURT:  All right.  Thank you.

11             THE WITNESS:  Thank you.

12                  (Witness excused at 11:52 a.m.)

13             THE COURT:  All right.  We have about five

14   minutes.

15             MS. DUNN:  Would Your Honor like us to call our

16   next witness?

17             THE COURT:  We can get started, yes.

18             MS. DUNN:  Okay.  Google calls Courtney Caldwell.

19             THE COURT SECURITY OFFICER:  Face the deputy

20   clerk.  Raise your right hand.

21   Thereupon,

22                  COURTNEY CALDWELL,

23   having been called as a witness on behalf of the defendant

24   and having been first duly sworn by the Deputy Clerk, was

25   examined and testified as follows:
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Stephanie Austin, RPR, CRR USDC/EDVA (607) 743-1894

1   (Time noted: 11:53 a.m.)

2   THE DEPUTY CLERK: Thank you.

3   THE COURT SECURITY OFFICER: You may be seated.

4   THE COURT: Are there any books for this witness?

5   MS. PHILLIPS: No, Your Honor.

6   THE COURT: Go ahead.

7   MS. PHILLIPS: Thank you, Your Honor.

8   DIRECT EXAMINATION

9   BY MS. PHILLIPS:

10   Q   Good morning, Ms. Caldwell. Will you please introduce

11   yourself to the Court and spell your full name for the court

12   reporter.

13   A   Yes. Good morning. My name is Courtney Caldwell.

14   C-O-U-R-T-N-E-Y. C-A-L-D-W-E-L-L.

15   Q   Ms. Caldwell, where do you work?

16   A   I work at ShearShare.

17   Q   And what kind of business is ShearShare?

18   A   ShearShare is a beauty tech start-up.

19   Q   Okay. And can you tell us about how -- what the

20   beauty -- what is the idea behind the beauty tech start-up

21   that is ShearShare?

22   A   So ShearShare is the first business-to-business mobile

23   application that connects salon and barbershop owners to

24   individual stylists to fill their empty salon space on

25   demand. Like salon owners, barbershop owners --

                                                        111

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 1              THE COURT:  Slow down a bit.

 2              THE WITNESS:  Okay.

 3              Salon owners and barbershop owners love ShearShare

 4   because we're helping them monetize their excess capacity.

 5              There's actually 40 percent of salon space that

 6   goes unused in salons everywhere across America every day,

 7   and the stylists, the barbers, the nail technicians, the

 8   estheticians, the makeup artists, the massage therapists,

 9   they love ShearShare because we're giving them access to

10   flexible, affordable space to work when and where they need

11   it starting at $15 a day, which is why the industry has kind

12   of nicknamed us Hairbnb.

13   Q    Ms. Caldwell, when did you start ShearShare?

14   A    We started ShearShare in 2017.

15   Q    Okay.  And do you have an app?

16   A    We do.

17   Q    And is that what you launched in 2017?

18   A    That's correct.

19   Q    Okay.  And what were you doing before you founded

20   ShearShare?

21   A    Oh, goodness.  I worked in corporate America for

22   20 years for companies such as RightNow Technologies,

23   Zendesk, Zenefits, Qualtrics.  My last full-time job before

24   jumping into ShearShare was at Oracle where I was

25   responsible for digital demand generation and innovation and
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1 had PnL across five continents.

2 Q   And what led you to begin ShearShare after your

3 experience for 20-plus years in corporate America?

4 A   So spending 20 years in corporate America, but also

5 being married to the most unemployable person in the world,

6 my husband, who's now my co-founder, you kind of get pulled

7 into the entrepreneurial world. So, honestly, this was a

8 problem. This filling empty salon space in salons and

9 barbershops was a problem that we had ourselves. And so we

10 were just trying to solve our own problem.

11   In 2012 or 2013, we started to see the shift in

12 the industry where stylists weren't wanting to work full

13 time anymore, they wanted to come in and be independent and

14 be solopreneurs, and, as we called them, small businesses of

15 one, and we started to take notice of that.

16   Around the same time, we were expanding and

17 rebranding our own salon, our award winning salon and

18 barbershop in Plano, Texas, and we had a stylist give us a

19 call, said, hey, I just moved my own salon about 45 minutes

20 south, but my clients are complaining already about the long

21 drive and not getting dinner on the table in time and

22 missing out on kids' soccer games, can I just come to your

23 salon and rent out this empty suite on a Friday/Saturday?

24 And I thought it was the craziest idea because that's just

25 not how stylists find professional space to work.

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1   But, thankfully, we said yes. We loved the

2   experience so much, the stylist loved the experience so much

3   that she started asking us to do the same thing for her in

4   different cities around Texas. So in McKinney and in Austin

5   and in San Antonio and in Houston.

6   And then her friends would see her post on social

7   media, and they would ask her, how are you getting access to

8   all of this amazing work space? And she would tell them,

9   there's this sweat little couple in Plano, Texas that when I

10   need a new space to work, I kind of give them my budget. If

11   I need certain amenities like wheelchair accessibility for

12   some of my clients, what days I'm looking to work, and they

13   come back to me with a couple of options, and I choose one.

14   And so we found ourselves manually matching

15   stylists to empty salon space for three years before we

16   said, hm, maybe this should be an app. And that is how

17   ShearShare got started.

18   Q   Wonderful. Thank you.

19   How has ShearShare grown since you and your

20   husband first launched the app in 2017?

21   A   Yeah. So we first started in Plano, Texas, right,

22   because, again, it was a problem that we were trying to

23   solve for ourselves and then ended up doing that for some

24   fellow salon and barbershop owners down the street and

25   around the corner. And, today, ShearShare has listings in

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 1 | more than 970 cities.

 2 | It used to be just focused on hair stylists and

 3 | barbers. Today, every licensed specialty within cosmetology

 4 | and barbering finds space to work on the ShearShare app. We

 5 | are now helping to serve more than 66,000 stylists and salon

 6 | owners and really serving as the greatest engine of jobs in

 7 | wealth creation for the beauty and barbering industry.

 8 | Q   Has ShearShare won any awards?

 9 | A   Yes. Gosh. As the pioneer of space as a service in

10 | this industry, we've won many awards. Probably too many to

11 | count.

12 | Q   Have you, yourself, personally won awards in connection

13 | with your work at ShearShare?

14 | A   Absolutely. L'Oréal, Women in Digital, Inc. Female

15 | Founders 100. I received my honorary doctorate for the

16 | pioneering working that we're doing, building the future of

17 | work for the salon industry worldwide. I was the first

18 | African-American female named to the Southern Methodist

19 | University Cox School of Business, Outstanding Young Alumni,

20 | Dallas Business Journal Women in Tech, Ada Lovelace Female

21 | Founder of the Year.

22 | Yes, a few.

23 | THE COURT: All right. And at this point with a

24 | lovely introduction, we're going to break for lunch. We'll

25 | be back at 1:00.

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Direct examination - C. Caldwell

1   (Court recessed for lunch at 11:58 p.m.)

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3   I certify that the foregoing is a true and accurate

4   transcription of my stenographic notes.

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6   *Stephanie Austin*
                _____

7   Stephanie M. Austin, RPR, CRR

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